



## Authorizations and Permits for Protected Species (APPS)

File #: 18786  
Title: Marine Mammal Health and Stranding Response P  
Modification: 9

### Applicant Information

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### Project Information

**File Number:** 18786

**Application Status:** **Application Complete - Issued**

**Project Title:** Marine Mammal Health and Stranding Response Program Activities

**Project Status:** New

**Previous Federal or State Permit:** 932-1905-01/MA-009526-1

**Permit Requested:**

- MMPA/ESA Research/Enhancement permit

**Where will activities occur?** Foreign Countries including territorial waters  
International waters  
US Locations including offshore waters

**Research Timeframe:** **Start:** 06/30/2015 **End:** 06/30/2020

**Sampling Season/Project Duration:** This permit is requested for a duration of 5-years. The exact dates when specific permitted activities will occur are unknown at this time, as they are either of an emergency response nature or pertain to opportunistic field research projects and import/exports for marine mammal health investigations, but are expected to occur year-round and last for the 5-year duration.

**Abstract:** The Marine Mammal Health and Stranding Response Program (MMHSRP) is a statutorily mandated program that has three Congressionally-directed goals: facilitate the collection and dissemination of reference data on the health and health trends of marine mammals in the wild; correlate the health of marine mammals with available data on physical, chemical, and biological environmental parameters; and coordinate effective responses to unusual mortality events (UMEs). Enhancement activities include emergency response to all ESA-listed species of cetaceans and pinnipeds under NMFS jurisdiction, worldwide. Emergency response includes, but is not limited to, animals that are stranded, sick, injured, trapped out-of-habitat, or in peril. Enhancement activities also include rehabilitation and release of ESA-listed species, temporary holding of non-releasable ESA-listed species until permanent placement is permitted, and disentanglement of all NMFS jurisdiction marine mammal species. Incidental harassment during disentanglement and other MMHSRP activities of any NMFS jurisdiction marine mammal species is requested. Scientific research on all NMFS marine mammals for health investigations is requested, as well as authorization for collection, receipt, transfer, import, export, analysis, and curation of marine mammal specimens.

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## Project Description

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**Purpose:** The objectives of this program for which permit authorization is requested are: emergency response to ESA-listed marine mammals in distress through stranding response, rehabilitation and release of ESA-listed species, entanglement response of all marine mammals; response to animals in danger due to natural disasters, spills, or disease threats; and assessment of or response to marine mammal health status or threats through research activities on live and dead marine mammals, ESA-listed and not, and collection, possession, archival, import/export, and analysis of marine mammal specimens for research and enhancement purposes.

Emergency response activities for stranded, entangled, out-of-habitat, and marine mammals in other emergency situations will improve our understanding of the risks confronting these animals and enhance the survival and/or recovery of species in the wild. Response activities result in a significant improvement in animal welfare by reducing or eliminating pain and suffering. Without these response activities, impacted animals would have a greater likelihood of mortality, generally resulting in death and removal from the population. Such losses may have a detrimental effect on the recovery of the species and reduce the resilience of the population, species, or stock, which is of special concern for those species that are depleted, threatened, or endangered. Response and surveillance activities allow for the detection and assessment of morbidity and mortality in marine mammals, and result in early identification of marine mammal health threats and coordinated responses or mitigation, including noteworthy events (reportable diseases detected in stranded animals, emerging disease seen in a novel population, average stranding rates above historical averages, etc.). Valuable information on marine mammal populations, such as biology, health, and disease detection, is collected during the examination of stranded animals. Researchers study why marine mammals become ill or injured, strand, and potentially die, and understanding these causes or indicators of health is beneficial for all marine mammal populations as well as the greater marine ecosystem. Additionally, field projects have often been undertaken in areas where a marine mammal population has experienced a health-related insult such as an infectious disease outbreak, widespread starvation due to environmental conditions, an identified significant threat (such as that from a HAB or contaminant exposure) or an anthropogenic stressor such as an oil spill either during or some time period after the insult appears to have subsided and the immediate "emergency" response is considered to be over, but impacts on the animals may persist. These response field projects have included capture-release health assessment programs, remote sampling, or other less invasive sample collection efforts, with the aim of understanding how the population has been exposed, recovered or failed to recover from the insult. These efforts may be driven by recommendations from the Working Group on Marine Mammal Unusual Mortality Events (WGMMUME), a Natural Resource Damage Assessment (NRDA) process, another external process or body such as the Marine Mammal Commission (MMC), or may be driven from within the MMHSRP.

We define entanglements to include both external processes where a foreign material (gear, line, debris, etc.) has become wrapped around, hooked into, or otherwise associated with the outside of the body of the animal as well as internal processes where an animal has ingested gear including hooks, line, or other marine debris. Response activities for entanglements are targeted to assess the entanglement and identify the most appropriate action to take to remove the gear (if warranted), increasing the chance of survival for the individual animal and therefore it continuing as a future functioning member of the population. In some cases of ingested gear or marine debris, the response may entail capture and surgical or non-surgical removal of the gear or debris (specifically for pinnipeds and small cetaceans). Marine mammals become entangled in or ingest many different types of lines, gear and debris present in the ocean; depending upon the configuration of the entanglement/ingestion, it may cause serious injuries to animals and restrict their ability to move, feed, dive, reproduce, or nurse young. In most cases, if an animal cannot free itself from the entangling material it will die without intervention, and death can occur after weeks or months of pain and suffering for the individual (Moore and van der Hoop 2012).

Entanglement response actions also provide opportunities for the identification of fisheries or other gear involved in the event and assessment of management actions that have been implemented for those fisheries or other types of mitigation. In fisheries, mitigation may take place through the Take Reduction Team process, the List of Fisheries, or other means. For a marine debris example, entanglement in packing bands has been identified as a significant source of injury and mortality in Steller sea lions (Raum-Suryan et al. 2009). The Alaska Department of Fish and Game and NOAA Fisheries Alaska Region have been working with industries to promote awareness of the issue, encourage everyone to cut loops prior to discarding them, and to develop biodegradable options (Raum-Suryan et al. 2009, NOAA Fisheries Alaska n.d.).

Entanglement response activities would also have a positive impact on those species that are threatened and endangered, especially North Atlantic right whales (*Eubalaena glacialis*), as entanglements are known to

be a significant source of mortality. The North Atlantic right whale population is estimated at approximately 450 animals (NMFS 2012). The loss of one individual, especially a female, from an entanglement would be a major impact to the species. The premature death of a single mature female could make recovery of the species untenable. Among the other listed threatened and endangered species, humpback whales, other large endangered whales, killer whales (*Orcinus orca*), false killer whales (*Pseudorca crassidens*), beluga whales (*Delphinapterus leucas*), Steller sea lions (*Eumetopias jubatus*), Guadalupe fur seals (*Arctocephalus townsendi*), ice seals, and Hawaiian monk seals (*Neomonachus schauinslandi*) could also be positively affected by disentangling activities. However, for all these instances, prevention is the key to better conservation and reduction in suffering and deaths of marine mammals. The identification of the gear is critical to prevention and there is a great emphasis by the MMHSRP on processes and protocols to optimize identification of gear.

Research activities are conducted by the MMHSRP to better understand issues surrounding marine mammal health. In the context of this permit, research activities fall into two categories: those that occur either during an emergency or after the fact and directly derive from an emergency event investigation ("emergency response-related research"), and those that do not (such as baseline health research).

Examples of "emergency response-related research" projects that derive from an emergency event investigation include conducting captures for health assessments of marine mammals during and after a UME or oil spill. For these examples, the WGMMUME or scientists through the NRDA process (respectively) may recommend continued monitoring, assessment, and study of a population (or several populations) for a number of years, even after the UME has ended or some of the oil spill restoration has been conducted; in other situations, a different expert group may be consulted. These assessments may include monitoring of animals that appear outwardly healthy within those populations. In these cases, such research would be considered a part of the emergency response because the target animals may still be affected by the incident and the purpose of the research is to determine to what extent the animals may still be affected or are recovering. As long as the research activities are part of the approved research plans of the expert body (WGMMUME, NRDA, etc.), these "emergency response-related research" projects would be considered part of an emergency response. Emergency response-related research would be conducted by CI's listed on the permit, and would receive prior approval by the PI following a review of the research proposal. Take requests for "emergency response-related research" activities are covered in Take Table 1.

Some examples of research projects that do not derive from an emergency event investigation include: baseline monitoring of "healthy" animals to gain reference data on the population; research and development of tools and techniques that would be tested on animals in public display, rehabilitation, or the wild; or surveillance of presumed healthy animals for the detection of new threats such as infectious diseases. These research projects can only be conducted by CI's listed on the permit, and must receive prior approval by the PI following a review of a detailed research proposal and qualifications of the personnel. In addition, significant other research is conducted on marine mammal parts collected legally under this permit or other authorized projects (including foreign projects, with the subsequent import of the part). This research helps the marine mammal community better understand the health of these animals, develop tools and techniques that can be used to study or assist these populations, and for basic scientific research. Take requests for research projects that do not derive from emergency event investigations are presented in Take Table 2. We are not requesting authorization to capture ESA-listed small cetaceans (e.g., Cook Inlet beluga whales, Hawaiian insular false killer whales, Southern resident killer whales) for research purposes, but may conduct research on animals in hand from other authorized activities such as stranded animals, permanently captive animals, and permitted scientific research.

Examples of various types of enhancement and scientific research efforts that have been or are anticipated to be carried out under this permit follow in the application, and particularly in Appendix A (literature citations resulting from the activities of the MMHSRP and our collaborators) and Appendix B (a summary of recent MMHSRP research activities).

In the late 1980s, a number of mass mortality events occurred in the U.S. and abroad, gaining significant public attention. A mass die-off of humpback whales in the Northeast U.S. was linked to saxitoxin, resulting from a harmful algal bloom (HAB). Hundreds of bottlenose dolphins (*Tursiops truncatus*) stranded dead in the mid-Atlantic and Southeast U.S. due to morbillivirus infection. Despite pre-existing marine mammal stranding networks in some parts of the country, the scientific investigation into these events encountered substantial difficulties due to the lack of standardized baseline data on marine mammal health. NMFS and Congressional efforts began to formalize the health and stranding program. Mounting evidence from these strandings and other sources showed high levels of anthropogenic contaminants in the animals, such as persistent organic pollutants (POPs), raising concerns about the overall health of marine mammal populations. Interest in marine mammal health and strandings continued to increase as the public raised concerns about deteriorating ocean conditions. Based on these growing concerns, Congress passed the Marine Mammal Health and Stranding Response Act (MMHSRA) in 1992.

Under the MMHSRA, the MMHSRP was formalized with the passage of Title IV, an amendment to the MMPA. This Act charged the Secretary of Commerce to develop a marine mammal health and stranding response program with three goals:

1. Facilitate the collection and dissemination of reference data on the health of marine mammals and health trends of marine mammal populations in the wild;
2. Correlate the health of marine mammals and marine mammal populations, in the wild, with available data on physical, chemical, and biological environmental parameters; and
3. Coordinate effective responses to unusual mortality events by establishing a process in the Department of Commerce in accordance with Section 404 of the MMPA.

In this legislation, there is specific language relative to stranding networks. The MMPA defines a stranding as "an event in the wild in which (A) a marine mammal is dead and is (i) on a beach or shore of the United States; or (ii) in waters under the jurisdiction of the United States (including any navigable waters); or (B) a marine mammal is alive and is (i) on a beach or shore of the United States and is unable to return to the water; (ii) on a beach or shore of the United States and, although able to return to the water, is in need of apparent medical attention; or (iii) in the waters under the jurisdiction of the United States (including any navigable waters), but is unable to return to its natural habitat under its own power or without assistance" (16 U.S.C. 1421h).

To fulfill these mandates, NMFS authorizes and oversees numerous external partners to conduct the activities of the MMHSRP, including but not limited to marine mammal stranding response, collectively known as the National Marine Mammal Stranding Network, and large whale entanglement response, collectively known as the National Large Whale Entanglement Response Network. In addition to authorizing and overseeing the National Marine Mammal Stranding Network, NMFS also conducts research activities to examine marine mammal health questions, including investigations of morbidity and mortality events.

In 2009, a Programmatic Environmental Impact (PEIS) Statement on the MMHSRP was completed. The entire document is available at <http://www.nmfs.noaa.gov/pr/health/eis.htm>. The stated purposes of the Proposed Actions were "to respond to marine mammals in distress, including those stranded, entangled, and out of habitat, and to answer research and management questions about marine mammal health." As part of the proposed actions for the PEIS, several MMHSRP national guidelines were published in 2009 including:

- Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release ([http://www.nmfs.noaa.gov/pr/pdfs/health/eis\\_appendixc.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/eis_appendixc.pdf)) - Attached as Appendix C
- o Evaluation Criteria and National Template for Marine Mammal Stranding Agreements ([http://www.nmfs.noaa.gov/pr/pdfs/health/stranding\\_agreement\\_template\\_criteria.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/stranding_agreement_template_criteria.pdf))
- o Standards for Rehabilitation Facilities ([http://www.nmfs.noaa.gov/pr/pdfs/health/rehab\\_standards.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/rehab_standards.pdf))
- o Standards for Release ([http://www.nmfs.noaa.gov/pr/pdfs/health/release\\_criteria.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/release_criteria.pdf))
- Large Whale Disentanglement Guidelines ([http://www.nmfs.noaa.gov/pr/pdfs/health/disentanglement\\_guidelines.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/disentanglement_guidelines.pdf))
- Marine Mammal Oil Spill Response Guidelines ([http://www.nmfs.noaa.gov/pr/pdfs/health/eis\\_appendixl.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/eis_appendixl.pdf))
- Carcass disposal information ([http://www.nmfs.noaa.gov/pr/pdfs/health/eis\\_appendixj.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/eis_appendixj.pdf))

The Record of Decision on the PEIS concluded that by implementing the preferred alternatives, which included the issuance of the above standards and guidelines, the actions conducted would effectively meet the MMHSRP's mandates under Title IV of the MMPA while minimizing the potential environmental impacts from the proposed actions.

In 2012, NMFS Policy Directive 02-308 was issued on the MMHSRP along with two implementing NMFS Procedural Directives: 02-308-01, "NMFS Facility Standards for Rehabilitating ESA-Listed Species" and 02-308-02 "NMFS Placement Process for Non-Releasable Marine Mammals." All three directives are included as Appendix D.

The National Marine Mammal Stranding Network is made up of approximately 115 partner organizations external to NMFS that have responsibility for marine mammal stranding response and/or rehabilitation over a designated geographic range. Most of these organizations have been responding to stranded animals for years or decades. The majority of stranding network organizations (currently 79/115) are authorized to respond to non-listed marine mammals under a cooperative agreement between the organization and the NMFS Regional Office issued under Section 112(c) of the MMPA, called a Stranding Agreement (SA). Since 2009, the format of the SA has been standardized across all the NMFS regions with the creation of a template SA (Appendix C).

This SA template includes numerous Articles that spell out the General Provisions and Responsibilities (both for NMFS and the external partner), lists the authorized personnel, provides for effective dates and renewal procedures, and includes a process to review, modify, or terminate the SA. There are three articles that are awarded or reserved depending upon the suite of actions that are authorized for a specific organization; Article III is for Dead Animal Response (including transport, sample collection including necropsy, and disposal), Article IV is for Live Animal Response: First Response (including beach rescue, triage, translocation, and transport), and Article V is for Live Animal Response: Rehabilitation and Final Disposition. Organizations may be awarded only Article III, only Article IV, or only Article V, or any combination (e.g., Article III and IV, Article IV and V, Article III-V). The activities under these SA Articles would be considered emergency response under this permit. In order to conduct intrusive research on the animals that they are responding to or holding in rehabilitation, a SA holder would need to be a Co-Investigator under the permit with the explicit authorization to conduct the specific research activity.

To obtain or renew an SA, the organizations must submit an application package to the NMFS Regional Office. This application package is evaluated against nationally standard criteria (Appendix C). As part of this application, organizations submit detailed information including their past experience, available resources (including personnel and equipment), and protocols for rapid response and investigation. An organization is not issued an SA until their application is complete and the Regional Office can determine that they meet all of the applicable criteria. The SA template and evaluation criteria were evaluated in the MMHSRP's PEIS, and the use of these standards was identified as the preferred alternative to be implemented to minimize impacts on the human environment from the stranding response activities of the MMHSRP. All policies and guidelines issued by NMFS applicable to the activities of the stranding network can be considered binding for the members of the network under their SA. Each SA contains a section outlining the

ability for NMFS to place a SA holder on probation or suspension, or to terminate the SA if the SA holder has violated the terms and conditions of the SA or any other policy or guideline issued by NMFS.

The remaining stranding network partners (~30) are Federal, state, local, or tribal government agencies with a conservation or resource management mission (e.g., NMFS Science Center Laboratories, National Seashores, National Wildlife Refuges, State Departments of Fish and Wildlife). These partners are authorized to respond to non-listed marine mammals under Section 109(h) of the MMPA, which provides an exemption to the take prohibition for Federal, State, or local government official or employees when acting in the course of their duties, if the taking is conducted in a humane manner for:

- a. the protection or welfare of the mammal;
- b. the protection of the public health and welfare; or
- c. the nonlethal removal of nuisance animals.

Any takes occurring under the authority of Section 109(h) must be reported to the NMFS Regional Stranding Coordinator within 60 days; partner government agencies provide this report by filling out the Level A data sheet. These partners are also included in broader Stranding Network initiatives such as regional and national network meetings, training opportunities, eligibility for competitive grants through the John H. Prescott Marine Mammal Rescue Assistance Grant Program, and access to limited amounts of other equipment, supplies, or funding (including in-kind funding such as limited paid diagnostic testing).

Because 112(c) and 109(h) authorize takes under the MMPA only, SAs and 109(h) do not provide authorization for takes under the ESA for ESA-listed species. The MMHSRP authorizes stranding response and rehabilitation by the National Marine Mammal Stranding Network members for ESA-listed marine mammal species through stranding agreements (MMPA section 109h take authority) and Permit No. 932-1905-01/MA-009526-1 (ESA section 10(a)(1)(A) take authority), and this permit application is the requested continuation of that work. Thus, there are no stranding facilities that are solely authorized under the Permit. All non-governmental organizations authorized under the Permit to respond to ESA-listed species also hold SAs and have been reviewed under the SA application and criteria process. Currently, all of the rehabilitation facilities in the national stranding network hold 112(c) SAs, so there are no groups conducting rehabilitation solely under 109(h) authority.

In addition to the SA application and review process, rehabilitation facilities (which are currently all SA holders) must meet a separate set of requirements, the Standards for Rehabilitation Facilities (Appendix C). These standards identify Minimum Requirements for rehabilitation facilities based upon taxa (cetaceans vs. pinnipeds) in several sections including: Facilities, Housing and Space; Water Quality; Quarantine; Sanitation; Food, Handling and Preparation; Veterinary Medical Care; and Record Keeping and Data Collection. Recommended standards are identified in some sections for facilities to view as a goal. Some of the requirements are in regards to the physical facility (e.g., adequacy of perimeter fencing), but others address actions on the part of the SA holder (e.g., how data is reported or how records are maintained). To assess compliance with the Minimum Standards, facilities are inspected by a team of inspectors on a rotating basis. In the past, inspections have been conducted approximately every 5 years. Prospectively, we are planning to conduct facility inspections every three years as part of the SA renewal process, although it could be more frequently if significant issues are identified, or less frequently if budgets or other logistic support is reduced or not available. The inspection team has consisted of personnel from NMFS and USDA/APHIS. The inspectors evaluate each facility on each applicable minimum standard and determine if any are not being met, which are then identified as Non-Compliance Issues (NCIs). These NCIs are verbally shared with the organizations and are written into a formal inspection report for the facility. Any identified NCIs will be addressed by the facility to the satisfaction of the NMFS Regional Stranding Coordinator prior to the renewal of the SA. The Standards for Rehabilitation Facilities was also evaluated as part of the PEIS process and issuance of the Standards, and subsequent compliance with them, was determined to be the preferred alternative to be implemented to minimize impacts on the human environment from the marine mammal rehabilitation activities of the MMHSRP.

Finally, NMFS developed best practices for the release of stranded marine mammals, called the Standards for Release (Appendix C). This document was developed over several years in consultation with numerous marine mammal experts and several opportunities for public comment. The guidelines provide an evaluative process for marine mammal rehabilitation facilities to determine if a stranded marine mammal in their care is suitable for release to the wild. Following a thorough assessment by the attending veterinarian and the rehabilitation team, animals are recommended to be releasable, conditionally releasable, conditionally non-releasable (manatees only), or non-releasable. Animals that are recommended to be releasable or conditionally releasable are believed to pose no risk of adverse impact to other marine mammals in the wild, and will likely be successful given the physical condition and behavior of the animal. Once the animal has been evaluated by the attending veterinarian, a summary of that evaluation is provided to the NMFS Regional Stranding Coordinator. For animals deemed releasable, the recommendation also includes a release plan with at least 15 days prior notification, unless this notification has been waived (e.g., for the typical annual cluster of cases where the etiology is known and diagnosis and treatment are routine). For animals deemed conditionally releasable, a contingency plan for how to recapture or treat the animal should it restrand must also be included. The NMFS Regional Administrator reviews the information provided and either: concurs with the recommendation of releasability and proposed release plan; requires additional information or changes to be made to the release plan; or does not concur with the recommendation and orders other disposition of the animal (such as placement in a public display facility). Only in rare instances does the NMFS Regional Office not concur with the recommendation of the attending veterinarian and onsite team. The Standards for Release document was also evaluated as part of the PEIS process and issuance of the Criteria, and subsequent compliance with them, was determined to be the preferred alternative to be implemented to minimize impacts on the human environment from the release of rehabilitated animals activities of the MMHSRP.

Again, because the SA and 109(h) authority do not apply to ESA-listed animals, the rehabilitation and release of listed species is conducted under Permit No. 932-1905-01/MA-009526-1, and this permit application is the requested continuation of that work. The Rehabilitation Facility Guidelines and Release Standards apply equally to the rehabilitation and release of ESA-listed animals. Additionally, the Procedural Directive for rehabilitation of ESA-listed animals (Appendix D) outlines additional requirements for rehabilitation facilities that wish to rehabilitate ESA-listed species for short term (<96 hours) or long term (>96 hours) including facility requirements and staffing standards. Any stranding network organization that was rehabilitating and releasing ESA-listed marine mammals under the authority of this permit would need to be in compliance with all of the Best Practices and Procedural Directives of the MMHSRP including the Rehabilitation Facility Guidelines, Release Standards, and Stranding Agreements. In addition, the Principal Investigator would approve the release plan for any ESA-listed marine mammal.

Free-swimming entangled animals do not meet the statutory definition of "stranded" as long as the animal is in its natural habitat. At this time, disentanglement of free-swimming cetaceans is not authorized under a SA. These actions have been conducted by Co-Investigators under the MMHSRP's permit or under Section 109(h) of the MMPA with a government employee present for the activity. We are requesting for disentanglement activities of all marine mammals (ESA-listed and non-listed) to be covered under this permit application for future activities, including free-swimming and stranded cetaceans, and pinnipeds on land or in water.

The Large Whale Disentanglement Network is made up of individuals who have been evaluated on their qualifications and past experience and then issued a Co-Investigator letter under Permit No. 932-1905-01/MA-009526-1 for response to ESA-listed large whales. Applicants provide a resume with a summary of their previous experience with disentanglement response and the roles they played in each event, training, vessel experience around large whales, whale research, and any other pertinent information. This resume is reviewed by the NMFS Entanglement Response Coordinators and a panel of 4-5 external reviewers who are already authorized within the Network. The review panel provides comments and a confidential recommendation on whether the individual should be authorized as a Co-Investigator, and at which level of responsibility. Additional details on this process are provided in Appendix E, Atlantic Disentanglement Network Advancement Policies (although titled "Atlantic", this process has been followed in the Pacific as well). There are currently 5 defined levels within the Large Whale Disentanglement Network, as defined in the Policies and Best Practices (Appendix C, page 243): observation and assessment (Level 1 and 2), to attachment of a telemetry or other buoy (Level 3), leading disentanglement efforts for large whales with the exception of right whales (Level 4), and leading disentanglement efforts for all large whales including right whales (Level 5). There are currently 20 individuals with Co-Investigator letters at Level 4 or Level 5, and these individuals are authorized to lead response efforts for entangled large whales. At present, once a Level is conferred, that authorization persists as long as the CI letter is valid (which is typically the life of the permit but in some cases is limited). We are currently in the process of evaluating how a Level authorization is maintained over time, taking into account recent entanglement response field experience. These CIs are expected to coordinate to the extent possible with the NMFS Entanglement Response Coordinators and the Permit PI, but given the uncertain communication abilities at sea and the need for quick decision-making they are empowered to use their best judgment and act independently if the situation requires it. All disentanglement actions are reviewed after the event with the participating responders and Regional and Headquarters MMHSRP staff. Members of the Large Whale Disentanglement Network may be called upon to respond to ESA-listed or non-listed (e.g., gray and minke) entangled large whales under the proposed permit.

Free-swimming entangled small cetaceans are monitored over time and assessed for the severity of the entanglement and the prognosis of the animal. Photographs, videos, and field notes are distributed to species experts and veterinarians for assessment of the entanglement and the animal condition. Site-specific logistics are also considered. Given all available information, the expert team will determine if an intervention is warranted, necessary, and can be conducted safely and this group will develop the intervention plan. All efforts involve highly experienced personnel in small cetacean capture and veterinary treatment and the intervention plan is approved by the PI or the Regional Stranding Coordinator (acting in their capacity as a Co-Investigator on the MMHSRP's permit) on a case-by-case basis.

If an entangled pinniped is stranded on the beach, it is typically responded to and disentangled on-site by the stranding network. Depending upon the severity of the wounds and the overall condition of the animal, it may also be taken to a rehabilitation facility. Increasingly, however, there are entangled animals that are only seen in large groups of animals or in less accessible areas (e.g., floating docks, jetties). Certain teams of highly trained personnel within the stranding network have been developing specialized techniques for responding to these entanglements such as remote darting with a sedative or in-water captures. Currently, these specialized techniques are not considered covered under the SA, and approval for these efforts is given by the PI or Regional Stranding Coordinator (acting in their capacity as a Co-Investigator on the MMHSRP's permit) on a case-by-case emergency basis, or a separate Co-Investigator letter is issued (e.g., Steller sea lion disentanglement).

In certain emergency situations, it may be necessary to attempt to prevent marine mammals from encountering or persisting in a potentially harmful situation, such as an oil spill, a pod of dolphins entering shallow water that are likely to mass strand (e.g., around Cape Cod), or to encourage an animal to leave freshwater (such as a mysticete that has swum inland up a river). This may be accomplished by attempting to haze or deter the animal to cause it to avoid or leave the harmful area, or by attempting to lure or attract it to a better situation. The decision to employ hazing or attractants is a cost/benefit analysis of the potential harm to the animal from entering or remaining in the negative situation, the potential harm to the animal from the deterrence/attractant technique(s) that would be employed, the potential risks to the crews that would be conducting the deterrence, the costs (financial and logistical) of conducting the deterrence, and the believed efficacy. There is no one hazing technique that will work in all situations or for all species. There are limited instances where hazing operations may be conducted under the authority of the SA. To be conducted under the SA, the hazing must be for individuals or small groups of non-listed pinnipeds or small cetaceans, and must use only non-acoustic techniques such as kayak-based disturbance. Hazing in other situations and attractant operations are not considered authorized under the SA and approval for these efforts

is given by the PI or Regional Stranding Coordinator (acting in their capacity as a Co-Investigator on the MMHSRP's permit) on a case-by-case emergency basis, or via a separate Co-Investigator letter.

Vaccination of animals including wildlife has been used as a management technique for years to eradicate infectious diseases that impact public, domestic animal, and wildlife health (Cross et al. 2007, Lombard et al. 2007, Meeusen et al. 2007). In recent years, large national and international wildlife vaccination programs focused on the control of rabies in a variety of wildlife vectors (Rosatte et al. 2009, Mähl et al. 2014). Additionally, for some endangered species several vaccination programs have been instituted to protect small and vulnerable populations including Florida panthers (*Puma concolor coryi*) from disease outbreaks (Cunningham et al. 2008), and black-footed ferrets (*Mustela nigripes*), prairie dogs (*Cynomys ludovicianus*), and Hawaiian monk seals (*Neomonachus schauinslandi*) from emerging threats (Rocke et al. 2008a-b, Duignan et al. 2014).

Epidemic diseases are diseases that occur at a time or place that they do not usually occur, or with a greater frequency than expected in a certain period. Severe epidemics may reduce host population density to such an extent that stochastic events or previously unimportant ecological factors may further reduce the host population size (Harwood and Hall 1990). For example, canine distemper dramatically reduced black-footed ferret populations in Wyoming, bringing them to extinction in the wild (Thorne and Williams 1988); and, avian malaria reduced native Hawaiian honeycreeper (*Hemignathus parvus*) populations to such small numbers that many were finally eliminated by predation or habitat loss (Warner 1968). Additionally, phocine distemper virus (PDV) outbreaks in northern Europe were responsible for a combined loss of 50% of the harbor seal (*Phoca vitulina*) populations in 1988 and 2002 (Härkönen et al. 2006). Currently several wildlife vaccination programs exist or can be implemented for endangered species to enhance recovery including black-footed ferret and prairie dog vaccination for plague (*Yersinia pestis*); Florida panthers for feline leukemia virus, and Hawaiian monk seals for morbillivirus and West Nile virus (USFWS 2008, USGS-NWHC 2012, NMFS 2014b).

Infectious diseases, especially those that are newly introduced to naïve populations of animals, can cause mass illness and death. For rare species or small isolated discrete population segments with low genetic diversity, the risk of a newly introduced pathogen could result in a significant disease outbreak with devastating population impacts. Therefore, the best means of preventing the spread of infectious disease among animals is through vaccination.

The proposed pinniped vaccination program is designed to address potential infectious disease threats to pinniped species under NMFS' jurisdiction. Although infectious disease does not currently appear to be significantly impacting any pinniped species, there is great potential for infectious diseases such as avian influenza, morbillivirus, and West Nile Virus (WNV) to have devastating effects on several endangered, threatened, or highly susceptible pinniped species including but not limited to: Guadalupe fur seals (*Arctocephalus townsendi*), Hawaiian monk seals, ice seals-ringed (*Phoca hispida*), ribbon (*Histiophoca fasciata*), bearded (*Erignathus barbatus*) and hooded seals (*Cystophora cristata*), and Pacific and Atlantic harbor seals. Because of these concerns regarding the impact of infectious disease on pinniped species, NMFS is committed to being prepared to rapidly respond to, if not prevent, outbreaks of the perceived greatest viral, bacterial, fungal or parasitic disease threats through vaccination/research and enhancement activities. The NMFS Hawaiian Monk Seal Research Program is permitted to vaccinate Hawaiian monk seals against WNV and morbillivirus. This activity was evaluated in the Final PEIS for Hawaiian Monk Seal Recovery Actions; and thus, monk seals are not included in this proposed permit for vaccinations. All other species (listed and non-listed) are included.

Under Title IV, NMFS has the unique statutory authority to investigate marine mammal health and stranding concerns, in cooperation with the National Stranding Network, the National Entanglement Response Network, and scientific researchers across the U.S. These permit activities are unique and do not duplicate any current efforts, but are a continuation of past activities under Permit No. 932-1905-01/MA-009526-1 (and previous permit No. 932-1489).

Due to the unpredictable emergency nature of strandings, health related events, UMEs, oil spill responses, natural disasters, and entanglements it is not possible to know what species and/or the number of animals that will require response. Research and enhancement activities are developed in response to UMEs, mortality and morbidity events, disease outbreaks, health concerns, toxin exposure, etc. The necessary sample size (number of animals and/or specimens) would be determined using different methods, depending upon the exact situation. Ideally, a power analysis or other sample size estimation method would be used to determine the appropriate sample size to provide statistically significant results. However, in many cases, it may not be possible or appropriate to approach the sample size determination in this way, as the number of cases may be limited by a variety of factors. For instance, if we are working with other researchers to "piggyback" the takes, the number of samples collected by the MMHSRP will be limited by the number of animals being sampled by that researcher. Piggybacking refers to working with researchers who are separately permitted to capture and/or closely approach to sample marine mammals; the MMHSRP may request a permitted researcher to collect additional samples (e.g., extra blood, swabs) to aid in an investigation of an UME or other health investigation, in addition to their permitted research samples. This minimizes the impacts to the subject population by coordinating research with already permitted captures or close approaches and sampling.

For health assessment captures conducted under this permit, logistical factors including processing time and total number of field days may limit the total number of animals that may be sampled. Finally, studies on stranded or entangled animals will necessarily be limited by the number of appropriate (e.g., animals that fit a species/age/sex profile) animals that strand, which is not within our control. In these situations, we will take as many samples as possible and keep the samples (or the results) as part of a long-term surveillance program to allow for future analyses. Examples of past MMHSRP research investigations are provided in

Appendix B along with how the total sample size was determined.

Maximum annual research take numbers for each ESA-listed species are provided in Take Table 2. These numbers are based on estimated numbers needed to provide statistically significant results, as well as likelihood of achieving the sampling. For non-listed species, taxa are lumped (pinnipeds, small cetaceans, large cetaceans) with a predicted maximum total number allowable due to the unpredictable nature of health assessments (e.g., to obtain baseline data from healthy animals to compare to in response to disease outbreaks).

From 2009-2013, a total of 1288 ESA-listed cetaceans and pinnipeds (excluding walrus) stranded in the United States and were responded to by the National Stranding Network. This represents an average of 250 animals per year. These strandings are spread throughout the 5 NMFS Regions in the United States (attached Figure 1; Table 1).

Figure 1. Stranded ESA-listed marine mammals responded to by the national marine mammal stranding network 2009-2013. Colors distinguish the 5 NMFS regions. (Note: Figure uploaded as a separate attachment in APPS)

Table 1. Stranded ESA-listed marine mammals that were responded to by the national marine mammal stranding network and received a Level A form, 2009-2013, by species. \*The number of Cook Inlet beluga whales is significantly underestimated, as this species mass strands and Level A forms may not be filled out for all individuals that stranded, but only those animals that are recovered or handled. (Note: Table uploaded as a separate attachment in APPS)

Over 20% of the ESA-listed marine mammals examined by the stranding network were found to have signs of human interaction. In many cases, this provides actionable information for fishery managers, NOAA's Office of Law Enforcement, biologists completing ESA Section 7 analyses or National Environmental Policy Act (NEPA) documents, and other agencies to implement changes that will protect these species and may increase chances of recovery.

While these historical data can provide context and justification for the emergency stranding response activities requested under this permit, they should not be used to estimate the number of takes that are requested or should be authorized under this permit. Historical stranding data are informative but do not accurately predict what will happen in the future as marine mammals are faced with new health threats, and the MMHSRP requires flexibility to respond as warranted to emergencies (Take Table 1).

Research on causes of mortality and morbidity of ESA-listed species provides managers with biological and ecological information important to identify, evaluate, and resolve conservation problems for such species. Information gained from analysis of biological samples from both live and dead stranded animals provides basic biological information, can sometimes be correlated with environmental parameters (e.g., the study of HABs and effects on marine mammals), and can result in or inform management and planning activities (e.g., fisheries gear modifications as a result of analyzing entangled large whales; planning and adjustment of shipping transportation corridors to avoid known whale habitats and reduce the risk of ship strike). Research on and development of diagnostic tools and treatments provides managers, biologists, responders, and rehabilitators with resources and information to aid in rescue and treatment of diseased animals, as well as the ability to use prophylactic treatments to prevent the spread of disease, which have a net conservation benefit for the species that is being researched and potentially others, including humans, in the case of zoonotic diseases.

Research will be conducted on specimens collected from dead and live stranded ESA-listed marine mammals to provide information on the causes of disease and mortality, the health of populations and individual animals, and the impact of human activities on marine mammals. Samples may be collected for baseline health surveillance whenever possible, and especially in conjunction with other marine mammal projects (e.g., permitted research, bycatch, subsistence). This provides significant basic knowledge on the biology and ecology of these species that often cannot be obtained by any other means other than the work of the MMHSRP. Past publications from the activities of the MMHSRP are presented in Appendix A, and examples of information gained from the MMHSRP's research activities are presented in Appendix B.

MMHSRP activities are carried out pursuant to mandates of the MMPA to rescue marine mammals in distress and investigate causes of mortality and morbidity. Our activities are responsive in nature with the goal to enhance survival of any marine mammal, including those species that are ESA-listed and MMPA-depleted, that is stranded, in peril, extra-limital, entangled, or whose life is otherwise in jeopardy. These response actions are undertaken for the specific animals that are in distress and there is no possible surrogate.

Prospective research projects will use non-listed surrogate species if possible (e.g., use of a new tag attachment method should be, if at all possible, tested in a non-listed phocid prior to first use in a Hawaiian monk seal), but there are situations when the research must involve an ESA-listed or MMPA-depleted species. For example, health assessment research may involve follow up monitoring via biological sampling of populations that previously experienced an UME. Using a surrogate in such cases is not appropriate.



The MMHSRP is not primarily a program for the recovery of ESA-listed species. That said, many of the priority recovery actions identified in the ESA recovery plans that were written for marine mammals under NMFS' jurisdiction would not be able to be conducted without the authorization from this permit. Namely, entanglement response activities, other emergency response (e.g., oil spill), stranding response, necropsy, and post-mortem sampling are all activities that are highlighted as priorities in many ESA recovery plans, and are activities that have been authorized under the permits previously issued to the MMHSRP, and which we are requesting to conduct under this application. Specific objectives identified in ESA recovery plans, on a species-by-species basis, are presented in an attached file (MMSHRP-ESARecoveryPlans.doc).

In addition to the domestic uses outlined above, information gathered by the MMHSRP is contributed to numerous international organizations. One example is the International Whaling Commission, where pertinent information is included in the international databases recording large whale entanglements and ship strikes. Information on specific cases is also presented in plenaries and working papers. The MMHSRP also provides significant expertise nationally and internationally in training and the development of best practices in emergency response and health-related activities. Much of the research, experimental, tool and technique development conducted by the MMHSRP is a result of scientific and/or management deliberations and recommendations; one example is the Office of Naval Research (ONR) Cetacean Tag Design Workshop (ONR 2009), which recommended testing tag attachment performance and animal effects in a controlled (captive) setting, including rehabilitation.

Through intervention, rescue, entanglement response, rehabilitation, and release, the activities of the MMHSRP directly benefit marine mammals through actions taken to ensure the survival of individuals within a population, contribute to maintaining and/or increasing abundance, and enhancing the health and welfare of individuals of a population.

Marine mammal enhancement activities include emergency response, rehabilitation, and release of ESA-listed species. Emergency response activities of the MMHSRP support the enhancement of threatened or endangered stocks or species. These direct response activities would be conducted to assist those animals that are observed in such conditions as:

- Entangled;
- Stranded (as defined in the MMPA);
- Trapped out-of-habitat;
- In peril (i.e. in the vicinity of an oil or hazardous waste spill, harmful algal bloom, noise, or blast exercises; potential mass stranding);
- Extralimital;
- A nuisance;
- Exhibiting abnormal behavior;
- Injured or exhibiting clinical signs of disease;
- In need of medical treatment;
- Part of a mortality or morbidity event;
- A potential to cause harm or a health risk to a wild population or to human health;
- Recapture for medical or health reasons animals released from public display, rehabilitation facilities, research facilities, or capture/release projects; or
- Neglected, abused or have other humane issues.

Marine mammals in any of the situations listed above require some type of emergency response. As previously described, the National Marine Mammal Stranding Network responds to events involving non-listed marine mammals under the authority of Section 112(c) (SA) or Section 109(h) (federal, state, local or tribal governments) of the MMPA. Responses are conducted by qualified network members who meet our minimum requirements in the Policies and Best Practices for Marine Mammal Stranding Response, Rehabilitation, and Release or Large Whale Disentanglement Guidelines. General guidelines for marine mammal stranding response are described in Marine Mammals Ashore: A Field Guide for Strandings Second Edition (Geraci et al. 2005). Several guidelines for conducting necropsies and collecting samples from stranded marine mammals are available on our website at <http://www.nmfs.noaa.gov/pr/health/publications.htm#guidance>.

Marine mammal UME investigations are coordinated by the MMHSRP in collaboration with the Regional Stranding Coordinators and the National Stranding Network. UME investigations are conducted in accordance with the National Contingency Plan for Response to Unusual Marine Mammal Mortality Events (Wilkinson 1996) ([http://www.nmfs.noaa.gov/pr/pdfs/health/umme\\_contingency.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/umme_contingency.pdf)). UME research questions, approaches, and protocols are developed, reviewed, and approved by the WGMMUME, an external panel of experts on marine mammal health, in consultation with additional subject matter experts (e.g., additional virologists if an infectious viral disease is suspected).

Research activities conducted by the MMHSRP provide essential understanding for current and emerging threats to marine mammal health, allowing for effective and pro-active considerations of those threats. Research (both emergency response-related research and non-response related research) may be conducted on wild animals (through efforts conducted directly by the MMHSRP or in cooperation with other

scientists already conducting research on wild animals, aka "piggy backing") or on animals in captivity, either temporary (rehabilitation) or permanent (public display, research, or military).

In the event that a stranded ESA-listed marine mammal is deemed non-releasable, the animal will need to be placed in a permanent managed care setting for the remainder of its life. In order to hold this animal in captivity, a facility will need to have a valid scientific research or enhancement permit for the particular ESA-listed species. In some instances, a facility may have a valid MMPA/ESA permit authorization when the animal is deemed non-releasable and it may be transferred (or retained for those institutions that are both members of the stranding network and authorized for permanent captivity) immediately. However, strandings are unpredictable, and there may not be a pre-existing valid MMPA/ESA permit. In these instances, we request that the non-releasable animal be held temporarily in a rehabilitation facility or managed care facility that meets the terms and conditions of the PI under this permit until a valid permit can be obtained by the institution that has been selected as the animal's permanent home. The animal may be transported to the permanent recipient facility, and research may be conducted on those animals at the permanent facility under this proposed permit (Take Table 2).

Import and export of animals for emergency response and rehabilitation is also requested under this permit. We request this authority for all species, listed and non-listed. Marine mammals may strand very far from their typical range, especially if they are debilitated. This means we may find ESA-listed marine mammals in different countries, even if their typical range is only within the United States or animals strand within the U.S. even though their typical range is not in U.S. waters. There are also some species that are routinely found across national boundaries (e.g., Southern resident killer whales frequently cross between Canada and the US). In many cases, the best opportunities for rehabilitation are found within the U.S., and it is in the best interest of the animal to transfer it to a U.S. rehabilitation facility. This typically occurs at the request of the foreign government or stranding network. Alternately, when the best opportunity for rehabilitation is found outside of the U.S. (e.g., at the Vancouver Aquarium for cetaceans stranding in Washington), it is in the best interest of the animal to export it out of the U.S. Once an animal has completed rehabilitation in the U.S. (or in a foreign facility), it may be in the best interest of the animal to export/import it back to the original stranding location for release. While much of the actual import and export may be handled by individuals who are authorized under Section 109(h) of the MMPA, either governmental employees or SA holders under Section 112(c), there may be instances where we would want to delegate the import/export authority to another individual or group via a Co-Investigator letter under this permit (e.g., Vancouver Aquarium staff may conduct the export of an animal to their facility for rehabilitation), which is why we request this authorization for non-ESA listed marine mammals as well. The MMHSRP attempts to maintain valid CITES permit coverage at all times to facilitate imports and exports on short notice, although there may be periods of time when there are no US CITES Permits. Additionally, the foreign country would need to have an export or import permit in place (as applicable). If such permits were not in place, emergency CITES (Convention on the International Trade in Endangered Species of Flora and Fauna) permits would be requested and obtained as applicable.

**Description:** Due to the unpredictable nature of strandings, health related events, UMEs, and entanglements it is not possible to know what species and/or the number of animals will need to be responded to, precisely which techniques will be used during the response, or the number of times that an individual will be taken. There is no way to describe the systematic approach for a typical day of activities, because every situation is different. However, the methods, tools, and techniques that have successfully been used in the past for marine mammal emergency response and which are anticipated to be used during the 5-year project period are outlined below. Appendix B provides a description of current research projects.

Research activities may be in response to UMEs, mortality and morbidity events, disease outbreaks, known health concerns, toxin exposure, etc. "Response-related research" is covered in Take Table 1. Annual research take numbers for research not involving animals for which a response was conducted are provided in Take Table 2. The proposed activities may occur on any land or water within the U.S. coastal zone. The coastal zone includes coastal waters, adjacent shore lands, intertidal areas, salt marshes, wetlands, and beaches. Activities may occur in the marine waters of the U.S. and its territories, including the Exclusive Economic Zone. Activities may occur in inland waters of the U.S. in response to out-of-habitat marine mammals, as well as in rehabilitation facilities. Specific locations of the proposed activities will be determined based on the location of strandings, entanglements, and other emergencies requiring response (previously listed). Analytic testing may be conducted in laboratories of the CIs, located in the U.S. and foreign countries. The location of research activities on live animals in the wild will be in response to marine mammal health issues (e.g., UMEs, mass strandings, disease outbreaks, etc.).

For each of the types of take activity detailed below, approval is sought for a wide range of options due to the uncertainty the MMHSRP has in each specific situation that arises and needs response or action. This is understandably true for emergency response operations, since we cannot predict with certainty which species will be involved or exactly the situation that will arise where the permit will be used. However, this also holds true for some aspects of research as well. Research questions arise from the health emergencies that are encountered, and the questions that arise during the response and investigation dictate the approaches and specific tools and techniques to be implemented. In some situations outlined below we limited the parameters around research to a greater extent than for emergency response, as we recognize that there is a greater need to be conservative when pursuing a research opportunity on a putatively healthy animal, as there is greater potential harm to that animal. In emergency response situations, our view is that the emergency is a life-or-death situation where the animal will die without our intervention.

Prior to a particular effort (both response and research), discussions will take place regarding the appropriate tools and techniques to use. Expertise will be sought from individuals who have experience with the techniques under consideration and the subject species; generally these will be individuals with a current or recent MMPA/ESA permits (if U.S. citizens or working in the U.S.). Consideration will be given to operational requirements of the task at hand, available personnel (and their expertise and training), and safety considerations. The pros and cons of different choices would be weighed, and a decision about the optimum approach would be made. The extent of this discussion is determined by the timeline. For an emergency response action where the window of opportunity is short (e.g., to haze animals away from an oil spill, to deal with a mass stranding of tens of animals on a beach), the discussion will be shorter and less formal – it may involve a conference call or be an e-mail chain between a very small number of participants,

but we will always strive to have the best available input. For a prospective response planning or research project where the anticipated action is days, weeks or months in the future, this discussion will likely be very formal, involve numerous opinions, and, for research projects, may result in a formal written research plan which will be reviewed by the WGMMUME, the NMFS IACUC, the MMC, and/or other expert bodies as appropriate. Training and experience of individuals will be evaluated as part of the application for Co-Investigator status under the permit, and only individuals with the appropriate expertise (as evaluated by the PI) will be given authority to conduct those activities. For example, if a Co-Investigator is requesting to conduct remote biopsy sampling on animals, they will provide a summary of previous biopsy work, including use or training on the proposed biopsy equipment (crossbow or rifle), which species they have experience with, and any other relevant information; upon review, the PI will determine whether their Co-Investigator letter should include remote biopsy sampling and if any constraints need to be placed on the authorization (e.g., to only crossbow or to only certain species).

For both response and research efforts, immediately prior to conducting the action(s), the plan and protocol that was developed by the expert group will be reviewed by the action team in the field (typically lead by the PI or a CI), with a focus on animal and human safety. While conducting the action, the decision of whether to proceed with the planned course of action would be continually reassessed and operational flexibility to change tactics would be implemented if the initial course of action proves ineffective, unsafe, or does not have the desired results. Following the conclusion of the response, the involved parties (including the Permit PI) will debrief on what happened and what was observed – the efficacy of the action, the response of the animal, and the experiences of the personnel involved. Any lessons learned and recommended changes for future efforts would be collated in an After Action Report which would be archived by the MMHSRP and referred to when a similar situation was encountered in the future and be included in the discussions in future planning efforts.

The following types of take activity are anticipated:

Close Approach

Aerial Surveys

Vessel Surveys

Hazing and Attractants

Capture, Restraint, and Handling

Transport

Attachment of Scientific Instruments

Marking

Disentanglement

Holding

Release

Diagnostic Imaging

Sample Collection and Analysis

Biopsy Sampling

Blood Sampling

Breath Sampling

Tooth Extraction

Orifice Sampling (Blowhole/Nasal/Oral/Uro-Genital/Vaginal/Prepuce/Lesions)

Ocular Sampling and Examination

Urine Sampling

Fecal Sampling

Milk Sampling

Sperm Sampling

Gastric Sampling

Gas Sampling

Sloughed Skin

Hair, Nails, and Vibrissae Sampling

Colonic Temperature

Administration of Medications and other Drugs

Euthanasia  
Auditory Brainstem Response/Auditory Evoked Potential  
Active Acoustic Playbacks  
Import and Export Activities  
Documentation

The activities are described to the level of detail possible and the purposes for each activity outlined in the attached document - ProjectDescriptionActivities-MMHSRP.docx.

Effects on non-target species. While emergency response activities are directed at a target individual, it is possible that other animals will be harassed, either when trying to identify the target (e.g., aerial survey over several whales to find the entangled animal), or as part of the response. This is especially true for marine mammals. We would try to avoid incidental takes of other species to the best of our ability by surveying the area prior to conducting research, by choosing appropriate equipment (e.g., net mesh size) and by avoiding them if possible, but it cannot be guaranteed. We are requesting authorization for these takes under this permit and will report them as part of the annual report. We are also preparing to submit a permit application to the US Fish and Wildlife Service for incidental harassment of FWS marine mammal species.

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## Supplemental Information

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**Status of Species:** The specific threatened and endangered species under NMFS jurisdiction that are requested in this application are listed in the table provided as an attachment (StatusofAffectedSpeciesTable-SupplementalInfo.docx). All ESA-listed marine mammals are also listed as depleted under the MMPA. Other depleted marine mammal species requested in this application are also provided on the table. The table also provides the CITES appendix listing for each species where applicable.

Other species, stocks, or DPSes, that may be listed as threatened, endangered, or depleted during the effective period of this permit are also requested.

**Lethal Take:** Please see attached document.

**Anticipated Effects on Animals:** The effects on marine mammals from research and enhancement activities are described below. The effects of these activities on other biological and environmental resources are fully described in the MMHSRP's PEIS, available at the following web site: <http://www.nmfs.noaa.gov/pr/health/eis.htm>. Impacts from previous research conducted under the MMHSRP's permit have also been summarized in annual reports to the Permits and Conservation Division. Appendix B also provides an overview of previous research conducted by the MMHSRP.

Close Approach, Vessel and Aerial Surveys. Takes of animals would occur during close approaches by vessel or aircraft, manned and unmanned as previously described. Close approaches would occur during numerous research and enhancement activities such as health assessment, disentanglement, biopsy sampling, breath sampling, tagging, photo identification, and collection of sloughed skin and feces. Incidental takes of non-targeted animals from close approaches are likely if they are in the vicinity of the targeted animal(s). Reactions from cetaceans may include swimming faster, breaching, diving, tail and fin slapping, or moving away from the vessel. Cetacean reactions to aerial surveys depend on the aircraft's altitude, length of pass, and species or individual behaviors. Approaches to marine mammals below certain altitudes may harass marine mammals and cause a change in behavior, or elicit behaviors, such as diving rapidly. Behaviors in response to close approaches by vessel and aircraft would generally be short-term, with a minimal effect on the animal or the population.

Pinniped reactions to vessels and aircraft are highly variable, depending on the species (Calkins and Pitcher 1982). In Steller sea lion studies, reactions ranged from none to complete and immediate departure from the haul-out site. In most cases, the potential impact to the animal is limited to disturbance; with the animal remaining at the haul-out site. When pinnipeds are startled and flush from rookeries, pups or young may be trampled or abandoned. Juvenile and adult animals may be trampled during stampedes or injured on underwater rocks and cliff faces. Disturbance from aerial surveys would be dependent on plane specifications, flight patterns, speed, and altitude. The incidence of stampedes in response to aerial surveys at every specific altitude is unknown, but is believed to be rare. No stampeding or flushing of Steller sea lions was noted in response to fixed wing aerial surveys conducted at elevations between 195 and 240 m (Snyder et al. 2001).

UASs are anticipated to cause minimal disturbance, if any, due to their very small size and minimal noise. In preliminary work by the Southwest Fisheries Science Center, there was no observed behavioral response of Antarctic fur seals, Weddell seals, or leopard seals to a UAS flown above 23 m (75 ft) altitude (Perryman et al. 2013). Arctic ice seals photographed by a fixed wing UAS at altitudes as low as 91 m (300 ft) showed no signs of disturbance; no seals were seen to enter the water or move away from the line of flight in response to the UAS (NOAA 2009). Similarly, preliminary work by the National

Marine Mammal Laboratory with surveys for Steller sea lions found no reactions to flights of a fixed wing or a VTOL UAS at an elevation generally above 61 m (200 ft). Disturbance of cetaceans during research was documented to be rare at elevations of 100 ft or greater (Perryman pers. comm.). While response activities may necessitate closer approaches, the disturbance from a UAS (in terms of received sound level, size of the silhouette, etc.) is less than would be from the manned aircraft needed to collect similar aerial information (NMFS 2014a).

Hazing. Potential adverse effects of hazing would likely be from the close approach of vessels, either used to deploy hazing methods or as a method itself. Acoustic deterrent methods may cause temporary physical discomfort, but would not likely cause long-term injuries. Exclusion devices used for pinnipeds would not have a significant impact, as animals would not become trapped or entangled. Overall, no significant, long-term impacts to behavior from hazing activities would be expected with proper mitigation. A beneficial impact would be expected from hazing because the use of this response action would likely prevent an animal from being harmed.

Capture, Restraint, and Handling. Any capture and/or restraint procedure would likely have some effect on the behavior or activities of marine mammals. The number of times an animal would be captured, the method(s) of restraint, as well as the age, reproductive condition, and general condition of the animal are all factors that would affect an animal's response to capture. Animals could incur contusions, concussions, lacerations, nerve injuries, hematomas, and fractures in their attempts to avoid capture or escape restraint (Fowler 1978). Stress could alter an animal's immune system. Stress from capture and restraint could cause capture myopathy, which occurs when an animal cannot cool itself (Fowler 1978). Capture myopathy is characterized by degeneration and necrosis of striated and cardiac muscles and usually develops within 7 to 14 days after significant trauma, stranding, transport, or capture.

Physical restraint of marine mammals, if not properly executed, may injure or kill an animal. Cetaceans may have their flippers injured or may overheat if flippers are trapped inside a stretcher with no openings, and pinnipeds may suffocate under the weight of a handler). Creases or seams in stretchers and transport equipment may press into the skin, causing discomfort, pain, and possible temporary or permanent injuries. Mechanical restraint methods may pose some risk to pinnipeds. Excessive pressure is possible using squeeze cages, which may cause trauma or interfere with adequate ventilation. Restraint boards may use a hinged guillotine to secure an animal's neck, which could obstruct the airway (Gulland et al. 2001).

During health assessments animals could become entangled in the capture net, which may result in injuries or death. Animals may also become stressed during handling and restraint. Signs of stress include reduced respiration, prolonged struggling while being held, and arching.

Capture of live pinnipeds may disrupt other animals, including conspecifics, if the capture occurs at a haul-out site or any other area where animals were located. Impacts would be expected, as non-target animals may flee into the water. Pups and young animals may be trampled or abandoned. Juvenile and adult animals may be trampled and killed during stampedes or injured on rocks and cliff faces. If animals were not injured, impacts would be minor and short-term as animals would likely return once responders have left. In work conducted in 2010 under the MMHSRP's previous permit (see Appendix B and Prager et al. 2013), 109 California sea lions were captured and handled to collect blood and urine. All of the animals but one returned to the haul out site after handling and sample collection and appeared to be active and mobile within 10 minutes of release.

Capture of free-swimming animals would have the anticipated effects of close approach described above.

Live stranded animals would most likely experience stress and pain due to the stranding event itself that could be decreased or increased by stranding response activities. An alert and responsive animal may panic when responders approach. Mothers separated from their calves may become aggressive, and members of social species may experience negative effects from being separated from conspecifics. Debilitated animals that are weakly responsive or non-responsive animals may not physically, but may physiologically, react to responders.

Effects of capture and handling when conducted by experienced personnel using appropriate equipment are expected to be minor and short-term. A recent paper by Wells et al. (2013) reviewed 69 cases of small cetaceans that had some intervention by members of the MMHSRP conducted under emergency response. Eighteen bottlenose dolphins were captured due to entanglement, out-of-habitat, or maternal death situations. Eleven of these animals were released immediately following treatment (without being brought to a rehabilitation facility) while the other seven were rehabilitated. The animals that were captured under these protocols, treated as necessary, and released immediately showed an 82% success rate, with the animals being resighted from 365-1,451 days post-release (average 862 days).

Transport. Depending on body condition, marine mammals may develop hyperthermia or hypothermia during transport, particularly if there is limited or no protection from ambient conditions including direct sun. Body surfaces may be exposed to the drying effects of air. Animals may also be knocked around, causing muscle damage or they may inhale exhaust fumes. Improper transport of marine mammals may cause abrasions, pressure necrosis, thermoregulatory problems, and respiratory problems. Muscular stiffness may occur from transport, but most accepted transport methods try to minimize or avoid this entirely. Stiffness is expected to disappear within a few hours to a few days, unless there was permanent muscle damage (Antrim and McBain 2001). Depending upon the mode of transport, animals may be exposed to high levels of noise and may suffer temporary hearing damage. However, most animals remain calm during transports.

Attachment of Scientific Instruments - Cetaceans. Effects from tagging would include reactions to the close approach and the physical attachment of the tag. A review of potential effects of tagging on

cetaceans was conducted (ONR 2009) and the expert panelists concluded that effects will vary by individual (ONR 2009). Reactions to close approaches are described above. Free-swimming cetaceans often react when hit by tags delivered by remote devices, such as tagging guns and crossbows. Cetaceans may also react when tags miss the animal and hit the water nearby. In most cases, the reactions of the remotely tagged animal and non-target animals last little more than a few minutes, after which behavior appears to return to normal (Watkins and Tyack 1991, Goodyear 1993, Hooker et al. 2001). The physical presence of a tag may lead to an alteration in the normal behavior of tagged animals, including a temporary disruption of feeding or mating activities. The hydrodynamic drag created by the presence of the tag on the animal should not cause an adverse impact if the tag is appropriately designed. The proportion of the hydrodynamic drag from the tag package to the animal's size and weight is such that the energetic demand on the animal would likely be insignificant. Potential adverse effects would be minimized by using the smallest possible instrument package and the smallest spear tip practicable.

Suction cup tagging procedures have been analyzed by NMFS PR1 in several environmental assessments (EAs) and biological opinions, where findings resulted in no significant impact on the animals. The possibility of injury to an animal comes from the remote risk of the suction cup landing in or striking a sensitive part of the animal, such as the eye, mouth, or blowhole. However, given the skills of the experienced researchers, this risk would be minimal or non-existent. The non-invasive nature of suction cup tags eliminates the threat of infection, but not inflammation. The suction cup would not remain attached to the whale for any significant length of time (typically not longer than 48 hours), and likely releases within a few hours (Baird 1997). The animal can easily dislodge the tag by rolling, breaching, or rubbing (Schneider et al. 1998). An animal could sustain injuries while trying to remove the tag by rubbing against the sea floor or other animals. The tag may migrate along the skin of the animal but would not cover the blowhole, as drag would move it away from the blowhole. The ease and speed with which some animals can remove a tag indicates that it is unlikely that an animal would endure long-term stress from the attachment. Vessel strikes pose a risk with suction cup tagging, as the animal must be followed for the duration of attachment. Vessels would be close to animals and may strike both target and non-target animals.

Implantable tags used on cetaceans have a greater potential for disturbance in application and would be more invasive than suction cup tags. Implantable tags typically penetrate the surface of the blubber layer. Tags generally work their way out of the blubber after weeks or months (Watkins et al. 1981), but some new satellite-linked tags may remain implanted for over a year (Mate et al. 2007). Disturbance of the animal would mainly occur during the close approach and attachment of the tag. Humpback whales in Alaska exhibited a sudden startle response with tag implantation. The response was a rapid vertical wave of the flukes in the air, as if the whales were trying to hurry their dive (Watkins et al. 1981). This disturbance would not likely injure individuals. The implanted tag would not be expected to alter the behavior of the whale, particularly with regard to feeding, reproduction, or migratory behavior. Potential adverse effects are minimized by using the smallest possible instrument package, a smaller spear tip to minimize penetration into the blubber, and minimizing the velocity of the package at impact (Weller 2008). Inflammation would be expected to occur after tag implantation and infection would be possible. There would be a low potential for an abscess or septicemia to occur after implantation. Post-tagging swelling or indentations may occur after the tags are lost, extruded, or migrate out. However, it is believed that swellings are likely related to local inflammation and soft tissue injury, and there is no evidence the tags compromised the animals' ability to locomote, forage, or reproduce (Robbins et al. 2013). In one report (Robbins et al. 2013), all of the animals tagged in one year were resighted in a subsequent year, and tagged females returned with a calf as frequently as other known individuals that were present during tagging but not tagged.

During health assessment captures and stranding response, animals would be tagged with either a roto-tag, VHF radio tag, or satellite-linked tag, on the trailing edge of the dorsal fin. The attachment of the roto-tag, radio or satellite-linked tag would not be considered significant, as pain would only last during the application, and local anesthesia may be used. Little tissue damage to the trailing edge of the dorsal fin would occur when the tag is released. Numerous long-term observations of current designs of tags trailing behind the fin, attached by a single pin, have found little to no adverse impact from the tags, with only a small, healed hole remaining after the tag is shed (R. Wells, pers. comm.).

The MMHSRP conducted bottlenose dolphin capture-release health assessments in St. Joseph Bay, Florida in 2005 and 2006. In these two field seasons, a total of 23 individual dolphins, eleven females and twelve males were captured and radio-tagged with a bullet tag, a VHF radio transmitter (MM130, Backmount Transmitter, Advanced Telemetry Systems, Inc., Isanti, NM) with a one-hole attachment through the dorsal fin's trailing edge (Balmer 2007). There were 24 tag records, as one female was tagged in both years. Of these 24 tag deployments, 1 animal was never observed (or detected in aerial surveys with a radio receiver) following the capture, 1 animal was monitored for only 8 days post capture until the tag failed and the dolphin was not observed again, and one animal was radio tracked for 21 days post-capture until the tag failed and the dolphin was not resighted. The fate of these 3 animals is unknown. The remainder of the tagged dolphins (21/24) were observed in photo-identification surveys after their tags had ceased transmitting (in some cases the tag had fallen off or migrated out of the dorsal fin, in others it remained attached but no longer functioning). The minimum tag duration from these tag deployments was 49 days (S.D. = 30 days).

The MMHSRP also conducted bottlenose dolphin health assessment captures in Barataria Bay, Louisiana in 2011, 2013 and 2014. In the 2014 captures, 7 of the 32 dolphins had been tagged during 2011 with either a radio tag only (n=1), a satellite tag only (n=1) or both satellite and radio tags which were placed with two holes (n=5). Tag transmission for these individuals ranged from 64-247 days, and based upon seasonal photo-identification surveys, all tags were lost within approximately 6 months of their final transmission. Tag attachment positions were all well-healed holes with no signs of long-term damage to the tagged animal and its dorsal fin (unpublished MMHSRP data).

Spider tags have been used in beluga whales for several decades. Previous researchers have concluded that the attachment technique appears to have little short or long-term impact on beluga whales (Richard et al. 1998, Suydam et al. 2005). Per Suydam et al. (2005), one beluga was tagged in 1998 and harvested by hunters in 1999. The animal was scarred but with no other apparent adverse impacts. Based upon the scarring pattern, it appeared that the pins at the anterior end had migrated out of the dorsal ridge first, followed by the posterior pins at a later date. Richard et al. (1998) tagged 10 belugas and reported one tag failure (no transmissions received) and the other 9 had a tag duration of 56-129 days). Suydam et al. (2005) reported on 5 animals tagged with spider tags with a tag duration ranging from 19-133 days. No immediate losses were observed. This is in contrast to a NMFS (2008) report, which found 3/18 tagged Cook Inlet beluga whales that had tag durations of less than 54 hours, 1 of which was a confirmed mortality. However, since this work the tagging protocol has been modified, and more recent studies (while not of Cook Inlet beluga) have not observed similar mortality rates (Andrews et al. 2014, Norman et al. 2012).

Attachment of Scientific Instruments- Pinnipeds. Tagging of pinnipeds would cause temporary stress during capture, restraint and/or sedation to attach or implant the tag. Invasive tags would cause temporary pain during attachment or implantation. Animal movement may prolong or prevent healing of flipper tags by producing repetitive stress on the wound. Infection of the wound site would be possible. The tag may pull out of the flipper during swimming or moving on a rookery or haul-out site. The site where the tag was could become infected. There is no quantitative information on the rate of infection caused by flipper tagging.

Effects associated with implanted tags may include excessive tissue reaction, infection, and subsequent rejection of implanted materials. Elephant seals had very short-term reactions to PIT tag implants and there were no external signs of tissue reaction (Galimberti et al. 2000). For LHX tags, pain would not occur during surgery, as animals would be anesthetized. Animals may have post-operative pain and discomfort at the incision site. Animals would be held in captive observation for a period of time (6 to 10 weeks) to ensure proper wound healing and the absence of complications. If necessary, animals may be treated with appropriate antibiotics and/or analgesics if an infection or pain occurs. Additionally, implantable tags are usually placed with sedation and under local or general anesthesia in pinnipeds. Determining the proper dose of sedation and anesthesia is dependent on a fairly accurate assessment of the animal's weight and condition. Miscalculation of an animal's weight could lead to an overdose, which can have lethal consequences (Fowler 1978). LHX tags have been used in sea otters for over 20 years, and the typical reactions, both behaviorally and physically, to the tag are innocuous (Lander et al. 2001). LHX tags were implanted into rehabilitated California sea lions with no long-term effects noted (Horning and Hill 2005, Mellish et al. 2007b). In California and Steller sea lions, minor postoperative discomfort was observed for the first 18 hours but was not observed after 24-48 hours and wound healing was observed to progress well in all animals with no indication of infection, bacteremia or septicemia noted (Horning et al. 2008). Short term behavioral changes were observed in Steller sea lions up to 12 days post-implant, but it is thought to be most likely due to the pain from surgery, and not likely to persist from the presence of the tag once the animal had healed from the surgery (Walker et al. 2009). Based upon measurements of serum and fecal corticosteroids of California and Steller sea lions, capture and restraint appear to elicit a greater glucocorticoid response, indicative of stress, than surgery, including implantation of LHX tags (Petrauskas et al. 2008).

Attachment of scientific instruments to pinnipeds may have both short- and long-term adverse effects, in addition to the effects of capture and restraint. Possible short-term impacts can include a reduction in foraging activity or an increase in grooming, at the expense of other behaviors (Kenward 1987). These types of impacts would likely be present after most tagging events and may be as much a delayed result of the capture and handling as of the tag's presence. Some pinnipeds fitted with Crittercams reacted during deployment (tagging) and for a short period after deployment. Few pinnipeds exhibited curiosity about the Crittercam or had aggressive reactions toward it for short periods (Marshall 1998). The hydrodynamic drag created by the instrument could exert an additional energetic demand on an animal. Over time, this drag may result in reduced foraging success, increased metabolic load, and stress to the animal. However, impacts from animal-borne video systems are believed to be minor or undetectable (Littnan et al. 2004, Bowen et al. 2002, Heaslip and Hooker 2008).

The attachments of instruments to the hair with epoxy should not cause pain if done properly. However, it may result in discomfort if the placement of the instrument causes pulling of the hair or skin during animal movement. In addition, if the ratio of resin and hardener is not correctly measured, the resulting heat-producing reaction could burn the animal's skin and pelage (Lander et al. 2001). Both the resin and hardener could cause skin irritation, resulting in itching, rashes, hives, and dermatitis. The instrument could be knocked or torn off, pulling out hair and possibly some of the underlying skin, which would then be open to infection.

Marking. Freeze branding may cause little or momentary pain to cetaceans during application, which would require 15-20 seconds per brand (typically six brands per animal). Discomfort may persist for some time after the procedure, but is expected to be minor. Hot branding may cause pain during application of the brands for a short duration (~3 min) and as the wounds heal over several weeks (Walker et al. 2010). However, studies of captive Steller sea lions found that activities returned to normal after 72 hours (Walker et al. 2010) and no elevation in cortisol levels between 2 and 7 weeks post-branding (Mellish et al. 2007a). Based on captive studies, individuals typically appear to respond well to the procedure and show no clinical signs of infection or inflammation within weeks (Mellish et al. 2007a). The survival rates of branded Steller sea lions (Hastings et al. 2009) and New Zealand sea lions (Wilkinson et al. 2011) were not significantly different from the survival rates of non-branded animals.

In phocids, Daoust et al. (2006) report on a study comparing the use of hot brands and freeze brands in harbor seals. In this study, 306 harbor seal pups (at an approximate age of 2-3 weeks) were branded with a set of 4 characters, 3 applied via hot branding (the iron was heated) and 1 freeze brand (the iron was frozen). At three times over the subsequent 10 weeks, a subset of the animals were recaptured

and the brand area was examined macroscopically and microscopically via biopsy. The authors determined that freeze brands in harbor seals were more likely to result in obscured brands through regrowth of hair follicles and depigmentation (which reduces the contrast between the brand and the surrounding fur), and was less reliable than hot branding to provide permanent, legible brands (Daoust et al. 2006). McMahon et al. (2006) reported on studies at Macquarie Island, where approximately 14,000 Southern elephant seal pups were hot branded over a period of 7 years (1993-1999). Approximately 7,000 branded seals were also tagged with flipper tags, allowing comparisons of those two methods of tagging, and in 2 years a smaller group of pups (n=279) were only flipper tagged and not branded. When comparing first-year survival of the two groups of seals (those hot branded vs. those flipper tagged), the survival estimates were significantly higher for branded animals than tagged, which the authors could not directly explain, although they did compensate for tag loss in the analysis. Also, there was no difference in survival based on occurrence of brand-associated wounds. Finally, the authors also reported on 50 elephant seal pups that were freeze branded and also flipper tagged. Of the 50 freeze branded pups, 26 were recaptured in subsequent years but could only be identified by the flipper tags – no brand marks were visible on any of the freeze branded animals, and the authors concluded that freeze branding does not produce usable long-term identification markings for elephant seals.

Both freeze and hot branding result in stress to the animal due to the restraint times and the pain involved with the techniques. However, it is believed that the stress and the pain are both minor and of short duration, do not have significant impacts to long-term survivorship, and are outweighed with being able to identify the individual animal from a distance for many years to follow.

Marking pinnipeds with paint applied remotely using a paint gun may stun an animal and cause momentary stress and a startle reaction. If the target animal is hit or missed, other non-target animals may be temporarily disturbed. Capturing and restraining animals for marking with paint, bleach, or dye would likely involve more stress than remote marking and may cause incidental disturbance of nearby animals, and if carelessly or improperly applied could cause irritation or injury. A pinniped may also be marked by gluing a tag to their fur. The epoxy could cause burns, skin irritation, or an allergic reaction. Infection would be possible if the tag was torn off.

Cetaceans and pinnipeds may also be marked with a grease pen, crayon, or zinc oxide to distinguish between animals (e.g., in a mass stranding situation or in a rehabilitation facility). These materials are not expected to cause an impact on the animals.

Disentanglement. Adverse effects on marine mammals could occur during disentanglement activities. Takes of entangled animals would occur during close approaches by aircraft (to locate entangled animals or for photo-identification), by vessel (for documentation, general assessment, photo-identification, and disentanglement attempts), or by land or water (for entangled pinnipeds). Incidental takes from close approaches are likely if other animals are in the vicinity of the entangled animal. Potential effects are as described previously.

Response of the entangled animal to entanglement response attempts depends upon the species and the nature of the entanglement. During attempts to physically restrain whales, floats, buoys, and control lines would be attached. Right whales have been known to tow numerous floats and drag moderate-sized vessels. Physical restraint of the animal may increase stress or pain. Physical restraint of a pinniped may also cause injuries or death. Chemical restraint may lower a free-swimming whale's respiratory rate, slow their breaching, and decrease their swimming strength. Sedatives may be delivered through a dart syringe, which may startle the animal and cause it to react. Effects of chemical restraint are the same as those described under the administration of medications section.

Potential injuries to the marine mammal may occur when cutting line and gear off the animal. Unintentional injuries may occur as an animal moves while cutting or if control of the equipment is lost. Responders may intentionally injure an animal, such as by cutting into the skin to free an embedded line, when no other options to safely remove gear exist and only after consideration of the possible damage.

We anticipate that the overall effects of the disentanglement program will be beneficial to the individual and to the species. Interventions (cutting of ropes) only occur when the entanglement is deemed a serious injury and is life threatening, so without an intervention the animal would have died and been removed from the population. If the intervention is partially or wholly successful in disentangling the animal, it has an improved chance of long-term survival and future contribution to the population through reproduction (note that some animals may still succumb to the injuries resulting from a long-term serious entanglement even if the intervention removes the gear; Moore et al. 2013).

Between 2000 and 2013, there were 25 cases involving North Atlantic right whales that were positively impacted by response teams from members of the Atlantic Large Whale Disentanglement Network. These include cases where some or all of the entangling gear was removed and the animal was documented to go on and live a productive life contributing back to the population. Of the 25 cases, at least 11 animals were subsequently observed to give birth to calves. This increases the number of animals positively impacted to 36 (25 individuals + 11 calves), which is approximately 7% of the ~500 animals estimated to be in the population of this endangered species (data from GARFO).

Seven cases of free-swimming entangled bottlenose dolphins were reviewed by Wells et al. (2013), which were captured for disentanglement. Of the seven, four were immediately released following the disentanglement and any other necessary medical interventions. All four were deemed a successful intervention with the animal surviving post-release; animals were sighted up to 1541 days post-release.



The remaining three animals were admitted to rehabilitation and released after some time in care (37-57 days, average of 50); two of these animals were considered successful releases and were observed for over two years following release. The remaining animal demonstrated hearing loss, was followed for 35 days following release, was observed to acquire a subsequent entanglement, and disappeared before another intervention could occur; this case was categorized as an unsuccessful intervention although the animal was successfully disentangled, rehabilitated, and released.

The history of Hawaiian monk seal interventions was recently evaluated, including dehookings and disentanglements, conducted between 1980 and 2012 (Harting et al. 2014). Using population analysis of survival and reproduction, the authors calculated that 17-24% of the 2012 population of Hawaiian monk seals was either an animal that had had an intervention or the descendant of an intervention animal.

**Holding.** While in temporary holding, animals may suffer adverse impacts. Being maintained in a relatively small enclosure may be stressful, and animals may have limited ability to move and exercise. Animals may suffer by being maintained solitarily, or at the other extreme, with too many conspecifics. Animals may be exposed to pathogens that they would not encounter in the wild.

The analysis of Hawaiian monk seal interventions referenced above also examined the impacts of a multi-year (1984-1992) rehabilitation and captive care effort for the seals and concluded that including that intervention program increased the proportion of the 2012 population that had been part of an intervention, or was descended from an intervention animal, to 32% (Harting et al. 2014). This is a significantly beneficial impact of temporary holding on a population level for a highly endangered species.

**Release.** Transport of animals to release sites could cause stress or injuries to an animal. Impacts on marine mammals from transport are described above under stranding response activities.

The release of pinnipeds on rookeries or haul-out sites could disrupt other animals. When pinnipeds are startled and disperse from rookeries, pups may be trampled or abandoned. Juvenile and adult animals may be trampled during stampedes or injured on underwater rocks and cliff faces.

**Diagnostic Imaging.** Ultrasound sampling activities on free-swimming cetaceans would include close approaches by vessels. Impacts from close approaches are described above. The use of the extended pole and the quick physical contact of the ultrasound device may affect an animal. The reaction of cetaceans to physical contact for ultrasound sampling has not been adequately studied. However, the contact of the apparatus on animals is very brief, lasting only a few seconds. This physical contact is not likely to disrupt the behavior of marine mammals and should not have a significant effect on an individual.

Diagnostic imaging performed on animals in hand (including those captured for other research, animals in rehabilitation, or during other rehabilitation activities) could have impacts from capture and restraint described above. Additionally, sedation/anesthesia and transport (if used to move the animal to the imaging equipment) could have impacts described above. The physical contact from ultrasound probes and radiograph plates is relatively brief, and negative reactions are generally not observed; in a few cases, dolphins dislodged the plate used for a dental radiograph from their mouth. If cetaceans are sampled out of the water, improper body support could compromise cardiac and respiratory functions (Haulena and Heath 2001). Animals may overheat in direct sun and heat without protection and body surfaces may be exposed to the drying effects of air. Internal ultrasound procedures pose the low risk of infection and perforation.

There is little risk to the fetus when radiographing pregnant animals (Toppenberg et al. 1999; <http://www.aafp.org/afp/990401ap/990401b.html>). The accepted cumulative dose of ionizing radiation during pregnancy is 5 rad, and no single diagnostic study exceeds this maximum. For example, a fetus would receive a dose of 0.00007 rad from a two-view chest x-ray of a human mother (Toppenberg et al. 1999). Radiographs are often used in small animal practices to diagnose and stage pregnancies. A recent review of bottlenose dolphins in Sarasota Bay, Florida, determined that 83% of pregnancies detected via diagnostic ultrasound during live capture-release health assessments were documented as resulting in live births (Wells et al. 2014). This demonstrates that the ultrasound, and in fact the entire process of the live capture-release program, did not result in the loss of the fetus.

Finally, some types of diagnostic imaging such as bone density scans and dental radiographs are being used by the MMHSRP to assess their accuracy and reliability for aging. Should these techniques prove effective, they can be used in the future in place of tooth extraction, which is a more invasive procedure with more potential complications, thereby reducing the overall impacts on an animal from a health assessment.

**Sample collection and analysis.** Sample collection would likely cause minor stress or injury to the animal. For stranded animals, most adverse impacts from sample collection would be outweighed by the potential beneficial impact of gaining the necessary diagnostic information to appropriately treat and ultimately save the animal. Diagnostic testing and the analysis of specimens after collection would have no impact on marine mammals. Specimens would be archived in the National Marine Mammal Tissue Bank (NMMTB) or other authorized laboratory and would not have any adverse impacts. Expected impacts from specific sample collection techniques are detailed below.

**Biopsy Sampling.** The effects of close approaches needed to conduct biopsy sampling are discussed above. A careful approach generally elicits, at most, a minimal and short-lived response from whales;

even those subjected to invasive biopsy procedures (Clapham et al. 1993, Gauthier and Sears 1999). No evidence of infection at the site of dart penetration or elsewhere has been seen among cetaceans resighted in days following biopsy sampling (Noren and Mocklin 2012). Based upon work with captive bottlenose dolphins, linear wounds heal quickly and are histologically repaired by 7 days, although still visible as a white mark (Bruce-Allen and Geraci 1985). In reports of several thousand biopsy samples taken via remote biopsy, only one case of mortality has been published involving a common dolphin, and this death was not attributed directly to the biopsy wound but rather to a cascade of circumstances including the failure of the dart stopper, the location of the biopsy on the animal's body, the thinness of the blubber layer, and the handling of the animal following the biopsy event (Bearzi 2000).

Surgical biopsy sampling of epidermis and blubber also occur during cetacean health assessment captures. Animals may exhibit signs of stress due to capture and restraint, as discussed above. Animals may experience momentary pain during the administration of local anesthesia. In rare occurrences, the biopsied area may become infected. Animals may have some soreness or pain with healing, but other adverse impacts would not be expected from blubber biopsies (Wells et al. 2005).

Effects of skin and blubber biopsy samples on pinnipeds would include the effects of the capture and restraint necessary for obtaining these samples are described above. In addition, there would be the potential for an infection after any of these procedures, given the unsanitary environment of rookeries. Healthy animals should be able to heal and recover from a properly performed procedure. Animals with compromised immune systems may develop major complications. The procedures may also cause more than momentary pain.

**Blood Sampling.** The risks of blood collection would be largely incidental to capture and restraint. Multiple attempts to obtain a blood sample would be stressful and cause some degree of pain; additionally, they may result in damage to the vein, clotting, and an abscess. Removing a volume of blood too large relative to the animal's mass and ability to replace the amount can result in fatigue, anemia, weakened immunity, and problems with clotting.

**Breath Sampling.** Breath sampling activities on free-swimming cetaceans would include close approaches by vessels. Impacts from close approaches are described above. The use of the extended pole and the quick physical contact of the vacuum cylinder or pneumotachograph may affect an animal. The reaction of cetaceans to physical contact for breath sampling has not been adequately studied. However, the contact of the apparatus on animals is very brief, lasting only a few seconds. This physical contact is not likely to disrupt the behavior of marine mammals and should not have a significant effect on an individual. Breath sampling performed on animals in hand (including those captured for other research, animals in rehabilitation, or during other rehabilitation activities) could have impacts from capture and restraint as described above. Pneumotachography has been conducted on restrained animals with no observed behavioral impact.

**Tooth Extraction.** Potential adverse effects from tooth extraction relate to the risks of capture, restraint, anesthesia, and the possibility of infection following the extraction. The procedure may result in more than momentary pain, which could temporarily interfere with foraging. In the dozens of cases where bottlenose dolphins have been re-examined years after extraction of a tooth, there has been no indication of long-term adverse impacts (R. Wells, pers. comm.).

**Other Sampling.** Other sampling that could occur includes the collection of blowhole, oral, ocular, uro-genital, vaginal, or prepuce swabs, urine, feces, milk, sperm, gastric contents, gas, other bodily fluids, sloughed skin, hair, nails, and vibrissae. The close approach to free-swimming cetaceans to collect feces and sloughed skin would have a minor impact on the animals as described previously. The collection of pinniped feces may disturb animals on haul-out sites or rookeries. Animals may rapidly depart the area, which could result in injury or death. Skin and blowhole swabs, feces, urine, and other bodily fluids may be collected from animals during health assessments. Clipping hair, nails, and whiskers would not likely result in pain. The effects on the animal from clipping are probably incidental to the effects of capture and restraint. Pulling a whisker may cause more than momentary pain, due to the highly sensitive nature of the snout and because the hair bulb is surrounded by blood and neurons. Colonic temperature measurement procedures pose the risks of infection and perforation. Most potential adverse effects from these types of sampling would likely result from capture and restraint and not from sampling itself.

**Administration of Medications.** Delivery of anesthesia or sedation in marine mammals, especially pinnipeds, can be complicated by their anatomical and physiological specializations to life in the marine environment (Haulena and Heath 2001). Determining the proper dose is dependent on a fairly accurate assessment of the animal's weight and condition. Miscalculation of an animal's weight could lead to an overdose, which can have lethal consequences (Fowler 1978). The stress response resulting from capture, handling, and restraining could change an animal's reaction to many drugs in unpredictable ways, which could have lethal consequences. Anesthesia or sedation may activate the dive reflex, which would include breath holding, slowing of the heart rate, and the pooling of blood from peripheral vessels. Phocids that have died as a result of anesthesia exhibited signs of bradycardia, tachycardia, hypoventilation, cyanosis, hyperthermia, and decreased peripheral perfusion (Haulena and Heath 2001). While under anesthesia, animals may develop hypothermia or hyperthermia. If the animal is not in water, improper body support could compromise cardiac and respiratory functions (Haulena and Heath 2001). Other drugs that may be administered include antibiotics, antifungals, vaccines, analgesics and other medications. Potential adverse effects from all drugs include drug interactions, incorrect drug dosages, side effects, injuries, infections, and death (Stoskopf et al. 2001). Effects vary according to drug, dosage, animal, and method of administration.

Wild Hawaiian monk seals were given an injectable antihelminthic treatment to deworm juveniles in an attempt to enhance growth and survivorship (Gobush et al. 2011). Of the forty-three monk seals injected, three seals developed minor swellings near the injection site that subsided on their own (all three seals were also noted to have previous wound histories unrelated to the study), one seal developed an abscess at the injection site, and one seal displayed signs of respiratory distress (Gobush et al. 2011). While the particular medication chosen did not have the desired effect, in that there was no difference in cestode prevalence between treated and control groups and weight gain over the entire period was not different, there was also no significant difference in survival between the treated and untreated cohorts, so deworming did not impact survival (Gobush et al. 2011).

Vaccines would most likely be administered to pinnipeds and cetaceans through injections which could involve either capture and restraint or remote deployment via pole syringe or other remote administration devices (especially for cetaceans). Vaccination would thus entail the risk associated with disturbance, injection and potentially capture/restraint. Other specific risks of vaccination may include an immune response, which can rarely result in a local reaction at the site of injection characterized by heat and swelling that resolves in 5-7 days, or febrile response (i.e., fever).

No adverse reactions have been reported following use of the recombinant canary pox CDV vaccine in marine mammals to date (Steller sea lions, sea otters [Jessup et al. 2009], harbor seals [Quinley et al. 2013], and several captive Hawaiian monk seals [Yochem et al. in prep]). The only published data on vaccination of pinnipeds against WNV are from SeaWorld, San Antonio, where captive Hawaiian monk seals have been vaccinated with an inactivated WNV vaccine from Fort Dodge following an outbreak of WNV in the park and the loss of one monk seal to WNV infection. The vaccinated seals have sero-converted following vaccination with no adverse reactions (Braun and Yochem 2006).

Without treatment, animals are expected to worsen and can die a slow and painful death. Antibiotics, antifungals, antivirals and dewormers all heal the subject animal and allow its condition to improve, potentially leading to recovery. Vaccinations can be protective of entire populations of animals preventing infectious disease. Sedatives and anesthesia allow for necessary medical and scientific procedures to be conducted with a minimum of pain and suffering by the animal. The benefit of the administration of medications is expected to outweigh potential detrimental impacts, particularly when performed by experienced personnel.

Euthanasia. Some euthanasia agents may cause hyperexcitability or violent reactions in animals. Intraperitoneal administration of a euthanasia solution may cause effects due to differential absorption, leading to the prolonged onset of action. It may also cause irritation in the surrounding tissues (Greer et al. 2001). Improper chemical euthanasia agents or methods of delivery may prolong the pain and suffering of an animal.

The correct use of ballistics to euthanize or humanely kill an animal would cause instantaneous unconsciousness, followed by respiratory and cardiac arrest or vice versa. Improper uses may not cause unconsciousness before death and would not be considered humane. During mass strandings, the use of ballistics may stress and exacerbate fear in the surviving animals, if they die in the vicinity. The use of ballistics and explosives require expertise for proper placement. Incorrect charge placement may not cause instantaneous unconsciousness and may cause tissue destruction (Greer et al. 2001). Exsanguination may occur when no other options are available, especially in cases of large whales after sedation with analgesics or anesthesia. It requires expertise in anatomical knowledge of the head and cervical spine, arterial access, or the location and approaches to the heart. Prolonged pain and suffering may occur if there is insufficient expertise with anatomical knowledge or if there are insufficient supplies or effectiveness of analgesics.

However, euthanasia is chosen as a last resort when all other options for successful intervention would not be successful. Euthanasia results in the animal experiencing a quick and pain-free death, which is preferable to letting it die on its own.

ABR/AEP Procedures. Potential adverse effects from ABR and AEP procedures would be as a result of capture, restraint, and handling described above. The maximum sound levels presented would be lower than sound levels produced by animal whistles and echolocation clicks. Sounds may be quieter than those animals are normally exposed to on a daily basis. Therefore, impacts from the procedures themselves would not be considered significant. Several stranded cetaceans were tested with AEPs under the MMHRSP's previous permit (see Appendix B). There was no evidence that the AEP test directly changed the behavior or stress level of any of the tested animals. Some of the tested animals were subsequently released with tags, and tag data showed that all of the released animals survived the stranding and AEP procedure. Short-term impacts, including inflammation and hyperemia, could be expected from the suction cups used to attach electrodes to the animal.

Active Acoustic Playbacks. Active acoustic playbacks would involve close approaches by one or more vessels and should have negligible adverse behavioral impacts on marine mammals. The source levels of the sounds produced under the proposed activities would be sufficiently low and produced at a large enough distance from the animal (minimum 100 m) to not result in levels that would be painful or overly disruptive to the animals. Previous tests indicate that sounds produced by typical playback equipment would be less powerful and attenuate more rapidly than other anthropogenic sources in the action area (i.e. cruise ships, fishing vessels, and large pleasure craft).

Import/Export of Marine Mammals or Marine Mammal Parts. Import and export of specimens (including carcasses) would not have an impact on marine mammals. All specimens would be collected legally in the U.S. or other foreign countries. Potential adverse effects of importing or exporting live marine mammals would be the result of restraint and transport, previously discussed. Most impacts during import/export would be minor and temporary and would end once the animal reached its destination.

Documentation. No impacts on the animals are expected from documentation activities. Impacts from close approach are covered above.

**Measures to  
Minimize Effects:**

Close approach by ground, aerial survey, vessel survey. To minimize disturbance and ensure adequate opportunities for disentanglement, photo-identification, tagging, monitoring, and sampling, the researchers would approach animal(s) gradually from behind or alongside, rather than head on. Researchers would approach at slow speeds, avoid making sudden changes in speed or pitch, and avoid using reverse gear. The amount of time spent in close proximity to an animal(s) would be limited to the minimum necessary to meet research or emergency response objectives. Whenever possible, for vessels, four-stroke engines would be used, as they are generally quieter than two-stroke engines. Research approaches to an individual animal would be limited and efforts to approach an individual would be discontinued if the animal displays potential avoidance behaviors, such as a change in its direction of travel or departures from normal breathing and/or dive patterns. If an animal(s) shows an apparent response to the presence of the research vessel or aircraft, researchers may modify vessel parameters such as altitude/distance or speed, or leave the vicinity of the animal if feasible and appropriate. During rescue situations, staying with the animal is essential, but the animal will be given as wide a berth as possible.

Only personnel with extensive experience operating vessels and aircraft near animals would be involved in close approaches. Observers would look for non-target species (e.g., manatees, sea turtles, other marine organisms) that could potentially be harassed by survey activities.

As use of UAS aircraft around marine mammals is relatively new, all observed effects will be recorded along with the altitude and rigorously reviewed during or after the action has concluded to inform current and future uses of any UAS. All UAS operations will be conducted pursuant to NOAA UAS Policy 220-1-5, including aircraft airworthiness certification from NOAA, pilot and crewmember training and qualification under the NOAA Operations Manual, aircraft authorization through the FAA (under the NOAA-FAA MOA in Class G airspaces under Class E VFR weather conditions), preflight and operational checklists, and appropriate agency notifications. The UAS will hover over an individual only long enough to obtain the needed photograph or video sequence. The number of flights flown per day would be restricted by daylight hours, environmental conditions, the battery charge available, and flight team fatigue.

Hazing. Visual observations would be made during the use of all hazing activities, especially acoustic deterrents. If a change in animal behavior is observed (other than the desired result of moving away from the hazing activities), the acoustic deterrent source would be shutdown. To minimize the potential for injury, airguns would not be used around mysticetes due to the ability of these animals to hear lower frequencies. Care would be taken with mid-frequency sonar on small animals and would be discontinued if the animals were too close to the source. Seal bombs would not be used in the vicinity of an oil spill due to combustion concerns. Hazing activities would be conducted by trained personnel.

Capture, restraint, and handling. These procedures would be performed or directly supervised by qualified personnel to complete the activities as quickly as possible. An experienced marine mammal veterinarian, veterinary technician, or animal husbandry specialist would be present to carry out or provide direct on-site supervision of all activities involving the use of anesthesia and sedatives.

Pinniped research activities would be carried out efficiently, to minimize the total time researchers are occupying the rookery/haul-out and the total number of times a site is disturbed. Stays on rookeries longer than five hours are justified only when it prevents additional disturbance of the site on subsequent days. To avoid respiratory distress, ischemia (restricted blood flow), or nerve damage, animals would be positioned properly (i.e., ventrally recumbent) during anesthesia (Williams et al. 1990). Respiration would be monitored and oxygen administered, as needed to avoid prolonged breath holding during gas anesthesia, which can result in cardiac hypoxia (lack of oxygen to the heart muscle). Qualified personnel would be prepared to control or assist ventilations when using sedatives. An emergency kit would be readily available to respond to complications or emergencies. The animal's body temperature would be closely monitored and steps would be taken to avoid hypo- and hyperthermia. Drug doses would be calculated on the researcher's best estimate of an animal's lean body mass and metabolic rate.

During health assessment activities, female dolphins determined to be in late-term pregnancy (late 2nd and 3rd trimester) will be tagged with a roto-tag, freeze-branded, and/or tagged with an electronic tag so they can be avoided in subsequent sets, and then released after minimal sampling to minimize handling time.

Transport. Potential impacts from the transport of animals from rehabilitation facilities to release sites would be minimized by following the APHIS "Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals" (9 CFR Ch 1, Subpart E).

Attachment of scientific instruments. The tag and/or instrument size and weight would be kept to the minimum needed to collect the desired data to minimize the potential for increased energetic costs of or

behavioral responses to larger tags. Tag attachment methods would be minimally invasive, to minimize potential pain or infection. Tag placement would be selected so that it will not interfere significantly with an animal's ability to forage and/or conduct other vital functions. A local anesthetic or analgesic may be administered prior to tagging or attaching a scientific instrument to an animal to minimize pain during application. All tagged animals should receive follow-up monitoring, including visual observations where feasible, to evaluate any potential effects from tagging activities. The decision of whether to tag an animal during emergency response and which tag to use will be part of the decision-making process in consultation with experts. If the costs cannot be determined to outweigh the benefits, the animal will not be tagged.

Pinniped flipper tags would be placed appropriately, so animals would not walk on it or be irritated by it. Care would be when attaching scientific instruments to pinnipeds to prevent thermal burns. The correct proportions of epoxy hardener and resin catalyst would be used to prevent a "hot" mix and the minimum practical amount of epoxy would be used to prevent burning the animal. To minimize the risk of infections from implantable tags, appropriate instrument sterilization and sterile surgery techniques would be used.

Measures to minimize the effects of attaching instruments to cetaceans would include the use of stoppers to reduce the force of impact and limit the depth of penetration of the tips of subdermal tags and using the smallest spear tip practicable. Arrow tips would be disinfected between and prior to each use, to minimize the risk of infection and cross-contamination. Suction cup mounted tags would be placed behind a cetacean's blowhole so that there is no risk of any migration of the suction cup resulting in obstruction of the blowhole. A take would be considered to have occurred with any attempt made to tag an animal from a crossbow, air gun, or pole, even if that attempt does not result in the successful attachment of the tag (i.e., hit and bounce off, missed but resulted in a startle response, etc.).

Impacts from tagging would be mitigated through appropriate selection of research animals. During research activities, tags will not be attached to large cetacean calves less than six months of age or females accompanying such calves. For small cetaceans, no tagging will occur on calves less than one year of age and mothers accompanying these animals would not specifically be targeted. However, they may be tagged if accidentally captured during health assessments. No tagging would occur on young-of-the-year animals. Mothers accompanying these animals would not specifically be targeted. However, they may be tagged if accidentally captured so that they may be monitored and/or more readily identified and avoided for future net sets.

For rehabilitated animals, whenever possible, the tag will be placed on the animal several days prior to release of the animal so that the animal can be closely monitored in order to ensure the tag fits properly on the animal and the animal is behaving normally.

Given the questions that still remain about mid- to long-term impacts of implanted tags, particularly on cetaceans, efforts would be made by the MMHSRP to conduct or work with partners to attempt to monitor tagged animals for as long as possible (ideally the remainder of their lives). We would specifically emphasize assessing the tag site, and use any information obtained to refine the tool/technique for future use.

Marking. After freeze and hot branding, the skin would be returned to normal temperature as quickly as possible using water. Hundreds of dolphins have been freeze-branded since 1970 and no long-term adverse impacts have been noted (Irvine et al. 1982, Scott et al. 1990). While Merrick et al. (1996) reported that hot branding may lead to increased mortalities, they were also not able to rule out emigration from the rookery, and more recent studies on captive and wild Steller sea lions have shown no long-term adverse impacts including decreased survivorship from hot branding (Hastings et al. 2009). Animals will be branded under gas anesthesia whenever possible; as it was shown that this may not totally prevent the animal from experiencing sensation during branding, and possibly even pain (Walker et al. 2011), additional sedation and analgesics will be used as well (or before/after branding) if possible. Bleach should not be put on pelage where flippers can reach. No mitigation is needed for use of other marking methods (e.g., grease pen, zinc oxide).

Disentanglement. Prior to beginning any entanglement response activities, a situational, on-site risk assessment will be conducted to explore the need for the activities, the logistical constraints, and any safety concerns. An action plan, with safety emphasized, will be developed for each operation, and all personnel will familiarize themselves with it. Response activities will only be initiated when the entire response team agrees that it is in the best interest of the animal (e.g., a life-threatening entanglement) and that any external risks to response personnel and the animal have been eliminated or minimized to the maximum extent possible.

For large whale disentanglements, responders would approach animals gradually, with minimal noise to reduce any reaction and minimize the time in close proximity to the animal. Responders would approach at slow speeds, avoid making sudden changes in speed or pitch, and avoid using reverse gear. Additional caution would be taken when approaching mothers and calves. Only responders with extensive experience operating vessels near large whales would be involved in the vessel approaches. Responders would only include those individuals who have been sufficiently trained in large whale disentanglement according to the Disentanglement Guidelines (available on the web at: [http://www.nmfs.noaa.gov/pr/pdfs/health/disentanglement\\_guidelines.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/disentanglement_guidelines.pdf)).

For small cetacean disentanglement activities, authorized participants' activities would be carried out under the authority of the MMHSRP ESA/MMPA permit, with the express consent of the Permit Holder/PI. Only personnel experienced in small cetacean capture techniques would perform rescue activities.

For disentanglements of pinnipeds on beach sites, responders would carry out activities efficiently, to minimize disturbance and the amount of time responders occupy the haul-out. For in-water pinniped disentanglement activities, authorized participants' activities would be carried out under the authority of the MMHSRP ESA/MMPA permit, with the express consent of the Permit Holder/PI following

review of the general protocols and decision trees used by the responder, as well as preparation of an action and safety plan for the specific capture event, which will be reviewed by the PI or an authorized CI.

Holding. All rehabilitation facilities are evaluated against the NMFS Standards for Rehabilitation Facilities published with the MMHSRP EIS and available here:

[http://www.nmfs.noaa.gov/pr/pdfs/health/rehab\\_standards.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/rehab_standards.pdf) Facilities are expected to meet the minimum standards listed in this document. By complying with these standards, most of the potential adverse effects of being maintained in a rehabilitation setting can be mitigated. For instance, the rehabilitation facility should have and maintain an attending veterinarian experienced in marine mammal care that would be willing to assume responsibility for diagnosis, treatment, and medical clearance for release or transport of marine mammals in rehabilitation. Also, the attending veterinarian should provide a schedule of veterinary care that includes a review of the husbandry records; visual and physical examinations of all marine mammals in rehabilitation; and a periodic visual inspection of the facilities, protocols, Standard Operating Procedures, and case records. All documentation of the attending veterinarian's experience would be submitted to NMFS for review prior to issuing an SA. The SA criteria require the rehabilitation facility to have sufficient physical and financial resources to maintain appropriate animal care. The stranding network participant would have to submit a facility operation manual to NMFS for review prior to the issuance of an SA. All operations would be consistent with NMFS and other applicable Federal and State policies, guidelines, directives, regulations, and laws. Facilities would be reviewed by NMFS for compliance with their SA every 3 years, and may be put on probation, suspended, or have their SA terminated for any violations or non-compliance. Veterinary medical care standards (Section 1.7 and 2.7 in the standards) would ensure that veterinarians and other personnel have the appropriate knowledge and experience to properly care for and treat marine mammals. Veterinarians must have: arrangements to obtain and store medications required for the animals housed at the rehabilitation facility; access to a list of expert veterinarians to contact for assistance; and a minimum skill level to treat species most commonly encountered at the facility. Veterinary care would comply with any applicable state veterinary practice laws and regulations for the state in which the facility is located. Examples of the recommended standards for veterinarians include: completion of a course offering basic medical training with marine mammals; one year of clinical experience working with the marine mammal(s) most frequently admitted to the facility; one year of clinical veterinary experience post graduation; and membership in the International Association for Aquatic Animal Medicine.

Potential adverse impacts from disease transmission would be minimized by measures in the Rehabilitation Facility Standards. Under Section 1.4 (cetaceans) and Section 2.4 (pinnipeds), quarantine facilities would be available and quarantine protocols would be in place for all incoming animals. Minimum quarantine standards include, but are not limited to: having separate filtration and water flow systems; providing sufficient space or solid barriers between animal enclosures to prevent direct contact; and maintaining equipment and tools strictly dedicated to the quarantine area. An evaluation and written veterinarian approval would be required before placing animals together after the quarantine period has been met. Standards include measures to reduce the spread of disease from open ocean/bay pens. Standards also include measures to prevent disease transmission from domestic and wild terrestrial animals to marine mammals and vice versa. For rehabilitation of ESA-listed marine mammals, Procedural Directive 02-301-01 (Appendix D) outlines additional requirements specifically for ESA-listed species.

Release. Under the Release Criteria following the process described above, animals would be medically cleared by the attending veterinarian and their assessment team before a release determination is made. The medical assessment would include a hands-on physical examination and a review of the animal's complete history, diagnostic test results, and medical and husbandry records. Animals should be off of medications (with the exclusion of sedatives used for transport) for at least 2 weeks prior to release. These procedures would minimize the risk of disease introduction or transmission to the wild population.

Animals would also be developmentally and behaviorally cleared by and appropriate, experienced marine mammal biologist before release occurred, enhancing their chance for survival. Developmental clearance would reasonably ensure that the animal has attained a sufficient age to be nutritionally independent, including the ability to forage and hunt. Behavioral clearance would include an assessment of an animal's breathing, swimming, diving, locomotion on land (pinnipeds), and foraging abilities. An evaluation of an animal's visual and auditory functions would be conducted. For cetaceans, any behavioral conditioning would be eliminated prior to release such that the association of food rewards with humans is diminished.

Procedural Directive 02-308-01 (Appendix D) also outlines additional requirements for the release of ESA-listed species, including the need for the PI of this permit to approve the release determinations for rehabilitated threatened and endangered marine mammals.

Diagnostic imaging. Only qualified veterinarians or other personnel with sufficient experience in the technique will be allowed to perform these procedures. Trained and experienced animal handlers would conduct capture and restraint activities. Care will be taken to minimize any impacts from capture and restraint as described previously. Appropriate body position will be maintained for cetaceans handled out of the water. The attending veterinarian will sedate or anesthetize pinnipeds and cetaceans if deemed necessary to reduce stress and ensure the safety and welfare of the animal. Appropriate measures will be taken to mitigate any deleterious impacts of sedation/anesthesia if needed. Animals will be monitored for hyper- and hypothermia and appropriate measures will be taken to mitigate either condition.

Procedures on cetaceans that react negatively to the dental radiographic plate will be discontinued if the plate is not tolerated after three attempts. Other radiographic procedures will be discontinued if

animals exhibit excessive stress, pain, or suffering during the procedure. Ultrasound procedures on cetaceans will take place in water as often as possible. For internal ultrasound, rectal and vaginal transducer probes will be well lubricated during sampling. Care will be taken to avoid introducing foreign matter into the vaginal canal.

Sample collection and analysis. These procedures would be performed or directly supervised by qualified personnel. General sedation or anesthesia, with or without local anesthesia, may be needed to facilitate safe animal handling and reduce discomfort associated with certain evaluation procedures. An experienced marine mammal veterinarian, veterinary technician or animal husbandry specialist would be present to carry out or would provide supervision of all activities involving the use of anesthesia and sedatives. A marine mammal veterinarian or other qualified personnel would monitor the physiologic state of each animal (e.g., by monitoring respiratory rate and character, heart rate, body temperature, and behavioral response to handling and sampling procedures). Animals that are physically restrained but continue to struggle or show signs of stress would either be sedated or be released immediately to minimize the risk that continued stress would lead to capture myopathy. In all cases efforts will be made to reduce the animal total holding time.

Biopsy sampling. During remote biopsy sampling, a take would be considered to have occurred with any attempt made to biopsy dart an animal from a crossbow, air gun, or pole, even if that attempt is unsuccessful in obtaining a biopsy sample (including if the dart misses entirely but provokes a startle response). In addition, no research biopsy sampling takes would occur on large cetacean calves less than six months of age or females accompanying such calves. For small cetaceans, no biopsy sampling would occur for calves less than one year of age. The area to be biopsied would be cleaned with appropriate disinfectants prior to taking the biopsy. Sterile, disposable biopsy punches or scalpel blades would be used to minimize the risk of infection and cross-contamination. Where disposable equipment is not available, liquid chemical sterilants would be used with adequate contact times (as indicated on the product label) to affect proper sterilization. Instruments would be rinsed with sterile water or saline before use on animals. Care would be taken to avoid contact of equipment disinfectants with an animal's skin, and disinfectant agents would be changed periodically to avoid growth of resistant strains of microorganisms.

For animals in hand, injection of a local anesthetic (typically Lidocaine) would be used to mitigate any pain that might be felt by the animal. For larger biopsies (>1cm<sup>2</sup>), a cotton plug soaked with ferric subsulfate or other disinfectants is inserted into the site once the biopsy sample is removed in order to stop bleeding.

Blood sampling. The volume of blood taken from individual animals at one time would not exceed more than 0.5-1 percent of its body weight, depending on taxa (Dein et al. 2005). Qualified researchers should not need to exceed three attempts (needle insertions) per person per sampling location when collecting blood. If an awake animal cannot be adequately immobilized for blood sampling, efforts to collect blood would be discontinued to avoid the possibility of serious injury or mortality. Sterile, disposable needles would be used to minimize the risk of infection and cross-contamination. Where disposable equipment is not available, liquid chemical sterilants would be used with adequate contact times (as indicated on the product label) to affect proper sterilization. Instruments would be rinsed with sterile water or saline before use on animals. Care would be taken to avoid contact of equipment disinfectants with an animal's skin, and disinfectant agents would be changed periodically to avoid growth of resistant strains of microorganisms.

Breath sampling. Breath sampling would be conducted by trained individuals. Contact with the animal would be minimized. For research breath sampling, and the number of repeated attempts would be limited to 5 attempts in order to minimize harassment through close approaches for free-swimming animals.

Tooth extraction. Use of lidocaine or other local anesthetic will minimize pain. Tooth extraction on live animals would be performed by trained individuals.

Other sampling. Other sampling would be performed by trained individuals. Sterile instruments would be used, and disposable instruments used when possible to minimize the risk of infection and cross-contamination.

Administration of medications. Medications would be administered by trained personnel, typically by or under the direct supervision of a marine mammal veterinarian or veterinary technician. Animals would be closely monitored to determine if any negative reactions were experienced by the marine mammal, and the veterinarian or other personnel would be able to intervene if needed.

Specifically for administering anesthesia and sedation medications, the weight of the animal will be obtained prior to the dosing of medications when possible. In field situations when this is not possible, especially when darting pinnipeds with sedation drugs prior to capture, weight will be estimated from the length and body condition of the animal and the lowest effective dose will be used. To mitigate either hyperthermia or hypothermia during anesthesia and sedation cold water or ice will be available to help lower the body temperature of the animal and warming blankets, heating pads and/or hot water bottles will be available to help warm or maintain body temperature. For cetaceans and manatees, supportive foam pads, slings or other supportive body devices will be used for long anesthetic procedures to minimize cardiovascular and respiratory effects from gravity for species that normally live entirely in water. Dependent upon field conditions, patient monitoring while under sedation or anesthesia will consist of respiratory rate, depth and character including auscultation of lungs via a stethoscope; heart rate and character via stethoscope or manual palpation; monitoring depth of anesthesia via eye position, and palpebral, tongue, ear, jaw and/or flipper reflexes/tone; monitoring mucus membrane and tongue color to assess perfusion of peripheral vasculature; and monitoring body temperature via

rectal or esophageal thermometer. Additionally, electronic monitoring of heart rate, body temperature, carbon dioxide levels, and blood oxygen saturation via pulse oximetry may be available dependent upon field conditions. Tracheal intubation will be used to maintain an airway and support normal respiration for animals that need respiratory support during long anesthetic procedures or during emergency responses including administration of supplemental oxygen and ventilation. Additionally, emergency drugs and care will be available to mitigate issues related to the dive reflex or stress response that can be associated with the use of sedation and anesthetic drugs in marine mammals. Specifically emergency drugs can be used to support respiration (Doxapram), heart rate (Atropine, Epinephrine), treat shock (Dexamethasone, Prednisolone), and treat pulmonary edema (Furosemide). Additionally, some anesthetics and sedation drugs have reversal agents that can be administered in emergency situations including Flumazenil to reverse Diazepam and Midazolam; Atipamezole to reverse Metomidine type medications; Naloxone or Naltrexone to reverse opioids including Butorphanol.

Additionally, to mitigate effects associated with the administration of other drugs such as antibiotics, antifungals, analgesics and other medications, care will be taken to investigate any possible drug interactions and side effects when giving more than one medication at a time by referencing veterinary drug formularies (Stoskopf et al. 2001). For IM medications that require administration of large volumes (>10 mls) multiple injection sites will be used to minimize intramuscular inflammation and infection risks.

Specific to vaccination programs, vaccine research would occur as needed in captive or rehabilitating seals. Vaccination of wild populations, captive, or rehabilitating animals may also occur for enhancement and emergency response purposes (as previously described). To minimize the potential for adverse reactions, research and enhancement use of vaccines would generally involve either inactivated dead pathogen or recombinant pathogen vaccines if at all possible, minimizing the use of live attenuated pathogen vaccine. Further, as outlined in Appendix H, any future vaccination programs with pinnipeds and cetaceans would proceed cautiously, testing safety and sero-conversion on surrogate species and on captive target species when feasible prior to use in the wild. Marking of vaccinated animals and careful field monitoring post-vaccination would ensure that any resulting mortalities would be detected.

Euthanasia. Under the SA template (Appendix C), euthanasia of animals would only be performed by the attending veterinarian or veterinary technician or by an experienced biologist acting on behalf of the attending veterinarian (i.e., in direct coordination or under previous authorization and training). Euthanasia procedures would follow approved guidelines, such as those listed in the 2013 Report of the AVMA on Euthanasia (AVMA 2013), CRC Handbook of Marine Mammal Medicine (Greer et. al 2001), and/or the American Association of Zoo Veterinarians (AAZV) guidelines (AAZV 2006). Persons using controlled drugs would comply with all applicable federal and state laws and regulations. This would include the Drug Enforcement Administration (DEA) regulations and any applicable state veterinary practice laws and regulations. Stranding network members would be authorized to euthanize ESA-listed species under the MMHSRP ESA/MMPA permit. In addition to the previous measures, euthanasia of ESA-listed species would require authorization and coordination with the appropriate NMFS regional stranding coordinator and approval of the PI/appropriate CIs.

ABR/AEP Procedures. ABR and AEP will be conducted by trained individuals. The ABR/AEP effort would be suspended if the animal showed negative reactions or if there was any concern about the animal's health. In AEP tests conducted in 2013 under the MMHSRP's previous permit (see Appendix B), cetacean subjects were continuously provided with supportive care (thermoregulation, foam padding and quiet conditions). These measures appeared to be effective in minimizing the stress on the animals. Whenever possible, we would attempt to employ similar techniques.

Active Acoustic Playbacks. A particular playback effort would be suspended if the exposed animals show strong reactions, as indicated by sustained breaching and other activities commonly associated with stress or agitation.

Import and export activities. Imports and exports would be conducted at USFWS designated ports of entry for importation and exportation of wildlife or wildlife parts, listed here.

USFWS Designated Ports of Entry  
Anchorage, AK Louisville, KY  
Atlanta, GA Memphis, TN  
Baltimore, MD Miami, FL  
Boston, MA New Orleans, LA  
Chicago, IL New York, NY  
Dallas/Fort Worth, TX Newark, NJ  
Honolulu, HI Portland, OR  
Houston, TX San Francisco, CA  
Los Angeles, CA Seattle, WA



In cases in which it is impossible to enter port at these locations, the PI or CIs will coordinate with USFWS agents to meet the vessel at the closest port of entry.

Documentation. The animal will be closely monitored. If documentation activities are determined to be causing stress or other negative reactions they will be stopped until the animal is comfortable again and then modified to prevent the negative reaction.

Currently there are no other feasible alternatives that could be used to obtain the necessary data on marine mammal health and health trends, or to appropriately respond to marine mammal health emergencies. Mitigation measures (see above) will be followed to minimize pain, suffering, injury, and mortality during emergency response and research activities.

Protocols as provided in the description of activities will be submitted to the three regional NMFS IACUCs as soon as this permit application is deemed to be complete.

All released animals, either immediately released from a stranding/rescue site, from a rehabilitation facility, or from research work would be tagged and/or marked for monitoring. For animals with an electronic tag, all efforts will be made to continue monitoring on a regular basis for at least six months or for the battery duration of the tag. Opportunistic resightings of other tagged animals (e.g., rehabilitated animals released with flipper tags) will be collected and documented as possible. Sightings of disentangled animals will be collected and evaluated as possible. For many of the cetaceans these are known individuals that can be followed over many years.

We will coordinate our emergency response activities with other researchers in the study area to the greatest extent possible by communicating with them when response activities were to be conducted. Many times local researchers provide assistance to the emergency responders, helping them to identify or access the animal in distress.

For prospective health research, we will work with researchers with ongoing field studies to "piggy-back" sample collection to avoid duplicative capture efforts. We will share resources and time surveys to minimize disturbance to the extent possible while still addressing the health questions driving the research project.

<b>Resources Needed to Accomplish Objectives:</b>	Financial resources available to conduct and complete the proposed activities include funding from Congress, the John H. Prescott Marine Mammal Rescue Assistance Grant Program (for stranding network participants), and the Marine Mammal Unusual Mortality Event Fund, plus additional resources provided by stranding network members for daily operations.  The MMHSRP finalized a Programmatic Environmental Impact Statement with a Record of Decision issued on April 21, 2009. The emergency response activities requested in this permit are evaluated under this PEIS. CITES import and export permits have been obtained and will continue to be renewed through USFWS for continued use. Coastal Zone Management Act consistency determinations have been made for all U.S. coastal states and territories.
<b>Disposition of Tissues:</b>	Parts may be permanently archived by members of the stranding network or partner institutions including the NMMTB, operated in collaboration with the National Institute of Standards and Technology. For diagnostic and research analyses, if sampling is not destructive, parts will be archived or returned to the member of the stranding network or permit PI or CI from which they originated. Legal custody will be retained by NMFS.
<b>Public Availability of Product/Publications:</b>	Research results will be published either as reports, books, NOAA or NIST Technical Memoranda or reports, or in peer-reviewed literature. Results are also shared on our website and through social media outlets such as Facebook.

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## Captive Information

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**(a) If applicable, explain why removal from the wild is necessary and why suitable animal(s) cannot be obtained from captive or rehabilitated stock.**  
The activities of the MMHSRP are directed at wild animals per statutory mandate and the goals of the program. For emergency response activities, animals are removed from the wild when it is in the best interest of the animals. They may require medical attention, need to be relocated from an out-of-habitat situation, or require entanglement response. It is the goal of the MMHSRP to return animals to the wild following intervention. One exception is when the animal is determined to be unlikely to thrive in the wild due to medical status or habituation, in which case the animal will be deemed non-releaseable and a permanent placement in human care will be sought. The other exception would be if the animal posed a risk to the wild population, such as being a carrier of a novel pathogen, in which case the animal will be permanently placed or humanely euthanized. Health assessment and other research studies need to be performed on wild animals to answer the questions about wild animal health. Captive populations are not equivalent to wild animals for these studies but studies may be valuable for a variety of scientific or medical reasons.

**(b) If the source stock is to be beached/stranded marine mammals undergoing rehabilitation, indicate the name and location of the rehabilitation facility.**

All of the U.S. rehabilitation facilities authorized as members of the National Marine Mammal Stranding Network (listed at: <http://www.nmfs.noaa.gov/pr/health/report.htm>) are potential locations that could be conducting work under this permit. In addition, emergency facilities may be created during natural or anthropogenic disasters. Such facilities will also meet minimum standards and will be staffed by trained experienced personnel under the supervision of an attending veterinarian.

**(c) If the source stock is from marine mammals or endangered species already in captivity (other than beached/stranded animals) indicate the name and location of the facility, and identify the specific animals (by NOAA ID number where applicable) involved in the proposed activity.**

In the course of a health-related research project conducted under this permit, captive animals may be used as controls, as comparison animals, individual subjects, or may be included depending upon their origin and other individual information. In addition, non-releasable rehabilitated ESA listed marine mammals may be placed in permanent captivity under this permit until a separate permit is issued to the facility. Animals and facilities have not been specifically identified at this time.

**(d) Where applicable, include a copy of any license or registration issued by the Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture, and any outstanding variances granted by APHIS, and the most recent APHIS inspection report.**

One file attached.

**(e) Where applicable, include the proposal submitted to the appropriate Institutional Animal Care and Use Committee (IACUC) established under the AWA, the IACUC approval, and any comments and recommendations of the IACUC.**

One file attached.

**(f) Provide a written statement from the responsible veterinarian or expert certifying that the facilities, methods of care and maintenance, and methods of transport will be adequate to ensure the well-being of the animals and, where applicable, comply with all care and transport standards established under the AWA.**

One file attached.

**(g) Describe the care and maintenance of the animals, including a complete description of the facilities where they will be maintained.**

Animals in rehabilitation will be maintained at one of the rehabilitation facilities in the National Marine Mammal Stranding Network, authorized under a 112(c) agreement under the MMPA, and subject to inspection to ensure compliance with the MMHSRP's Standards for Rehabilitation Facilities ([http://www.nmfs.noaa.gov/pr/pdfs/health/rehab\\_standards.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/rehab_standards.pdf)). Facilities rehabilitating ESA-listed marine mammals must also meet the requirements under Procedural Directive 02-308-01 (Appendix D).

Animals in permanent captivity used in marine mammal health research projects will be maintained in a captive setting in compliance with APHIS Regulations under the Animal Welfare Act.

**(h) Indicate whether a captive breeding program will be established and if so, provide justification in accordance with the species conservation or recovery plan, if applicable. For non-mammal ESA-species, indicate if you are willing to participate in a captive breeding program if requested by NMFS.**

No captive breeding program will be established.

**(i) Indicate the disposition of captive animals at the termination of research or enhancement activities.**

Animals being held in rehabilitation under this permit will be released to the wild unless deemed non-releasable. If deemed non-releasable, permanent placement in captivity will be sought. If no placement opportunities are available, animals will be euthanized.

Animals that are already being maintained in permanent care will remain in care.

**(j) If release of captive animals to the wild is proposed, state the length of time the animals will be held and describe the protocols for the release, including post-release monitoring protocols.**

Animals in rehabilitation will be held until such time as rehabilitation is deemed complete, and the animal has been evaluated and determined to be releasable. Per regulations at 216.27, animals will be released within six months of capture, unless the attending veterinarian determines that more time is needed for evaluation, in which case the animal will be re-evaluated at intervals of no more than 6 months. The animal will be assessed under the MMHSRP's Standards for Release (available at: [http://www.nmfs.noaa.gov/pr/pdfs/health/release\\_criteria.pdf](http://www.nmfs.noaa.gov/pr/pdfs/health/release_criteria.pdf)).

All animals will be marked prior to release. For threatened and endangered species and for most cetaceans, all attempts will be made to use a VHF or satellite-linked tag that can allow for tracking and post-release assessment. Other animals will be tagged with a roto tag/flipper tag at a minimum. Tagging and marking procedures and post-release monitoring practices are discussed in the Standards for Release.

The release site, timing, and specific procedure will be chosen based upon the natural history of the species involved and to maximize the likelihood for survival of the individual animal. Release considerations are discussed in the Standards for Release.

Release of rehabilitated animals was also assessed at length, and mitigation measures identified, in Sections 4 and 5 of the PEIS on the MMHSRP published in 2009 (available at: <http://www.nmfs.noaa.gov/pr/health/eis.htm>).

Location/Take Information

Location

**Study Number** Emergency    **Research Area:** Atlantic Ocean    **States:** AL,CT,DE,FL,GA,LA,MA,MD,ME,MS,NC,NH,NJ,NY,PR,RI,SC,TX,VA,VI

**Location Description:** All US waters: beaches, coastal waters of the US, waters within the US EEZ, and international waters; world-wide import/export; captive facilities and rehabilitation centers

Take Information

Line	Ver	Species	Listing Unit/Stock	Production /Origin	Life Stage	Sex	Expected Take	Takes Per Animal	Take Action	Observe /Collect Method	Procedure	Transport Record	Begin Date	End Date
1		Cetacean, unidentified	NA	All	All	Male and Female	99999999	99999	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Captive, maintain; Captive, research; Collect, remains for predation study; Collect, sloughed skin; Count/survey; Imaging, thermal; Import/export/receive, parts; Incidental harassment; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Intentional (directed) mortality; Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Transport; Ultrasound; Underwater photo/videography; Unintentional mortality; Weigh	1	6/30/2015	6/30/2020
<b>Details:</b> Emergency response (ER) of ESA-listed cetaceans; & ER research, disentanglement, incidental harassment, & import/export of all cetaceans (ESA-listed and non-listed). All activities as warranted to respond to emergencies including E-related research.														

2		Pinniped, unidentified	NA	All	All	Male and Female	99999999	99999	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Bioelectrical impedance (subcutaneous); Bioelectrical impedance (surface); Calipers (skin fold); Captive, maintain permanent; Captive, maintain temporary; Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Import/export/receive, parts; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Intentional (directed) mortality; Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, hot brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Salvage (carcass, tissue, parts); Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Transport; Ultrasound; Underwater photo/videography; Unintention	1	6/30/2015	6/30/2020
		<b>Details:</b> Emergency response(ER) of ESA-listed pinnipeds; & ER research, disentanglement, incid. harassment & import/export of all pinnipeds (ESA-listed & non-listed except walrus). All activities as warranted to respond to emergencies including E-related research.												

Location

**Study Number** Incidental    **Research Area:** Atlantic Ocean    **State:** NA  
**Location Description:** Incidental take in rivers and coastal waters of the U.S., waters within the U.S. EEZ and international waters.

Take Information

Line	Ver	Species	Listing Unit/Stock	Production /Origin	Life Stage	Sex	Expected Take	Takes Per Animal	Take Action	Observe /Collect Method	Procedure	Transport Record	Begin Date	End Date
1	G	Turtle, unidentified sea	NA (NMFS Endangered)	Wild	Adult/ Subadult/ Juvenile	Male and Female	10	1	Incidental take	Other	Other	N/A	7/13/2016	6/30/2020
		<b>Details:</b> Incidental live capture and release of up to 10 hard shell turtles of any species annually; disentanglement, resuscitation or transport to rehab as directed by vet												

2	G	Turtle, leatherback sea	Range-wide (NMFS Endangered)	Wild	Adult/ Subadult/ Juvenile	Male and Female	2	1	Incidental take	Other	Other	N/A	7/13/2016	6/30/2020
<b>Details:</b> Incidental live capture and release of up to 2 leatherback turtles annually; disentanglement, resuscitation or transport to rehab as directed by vet														
3	G	Sawfish, smalltooth	U.S. DPS (NMFS Endangered)	Wild	All	Male and Female	3	1	Incidental take	Other	Other	N/A	7/13/2016	6/30/2020
<b>Details:</b> Incidental live capture and release of up to 3 smalltooth sawfish annually; includes disentanglement and resuscitation.														
4	G	Sturgeon, Atlantic	Range-wide (NMFS Endangered/Threatened)	Wild	Adult/ Juvenile	Male and Female	3	1	Incidental take	Other	Other	N/A	7/13/2016	6/30/2020
<b>Details:</b> Incidental live capture and release of up to 3 Atlantic sturgeon annually; includes disentanglement and resuscitation.														
5	G	Sturgeon, green	Southern DPS (NMFS Threatened)	Natural	Juvenile	Male and Female	1	1	N/A	N/A	Other	N/A	7/13/2016	6/30/2020
<b>Details:</b> Incidental live capture and release of up to 1 Green sturgeon (Adult and Juvenile) annually; includes disentanglement and resuscitation.														
6	G	Sturgeon, Gulf	Range-wide (NMFS Threatened)	Wild	Adult/ Juvenile	Male and Female	1	1	Incidental take	Other	Other	N/A	7/13/2016	6/30/2020
<b>Details:</b> Incidental live capture and release of up to 1 Gulf sturgeon annually; includes disentanglement and resuscitation.														
7	G	Sturgeon, shortnose	Range-wide (NMFS Endangered)	Wild	Adult/ Juvenile	Male and Female	1	1	Incidental take	Other	Other	N/A	7/13/2016	6/30/2020
<b>Details:</b> Incidental live capture and release of up to 1 Shortnose sturgeon annually; includes disentanglement and resuscitation.														

Location

Study Number Research    Research Area: Atlantic Ocean    State: NA  
Location Description: All US waters: beaches, coastal waters of the US, waters within the US EEZ, and international waters; world-wide import/export; captive facilities and rehabilitation centers

Take Information

Line	Ver	Species	Listing Unit/Stock	Production /Origin	Life Stage	Sex	Expected Take	Takes Per Animal	Take Action	Observe /Collect Method	Procedure	Transport Record	Begin Date	End Date
1		Dolphin, unidentified	NA	All	All	Male and Female	99999999	99999	Harass	Survey, aerial/vessel	Acoustic, passive recording; Collect, sloughed skin; Count/survey; Incidental harassment; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Tracking; Underwater photo/videography	N/A	6/30/2015	6/30/2020
<b>Details:</b> Small cetacean aerial and vessel surveys (manned and unmanned) and associated non-intrusive sampling in the wild, captivity, and rehabilitation; all small cetaceans (non-listed and ESA-listed); direct and incidental harassment during any research activity														

2		Dolphin, unidentified	NA	All	Non-neonate	Male and Female	200	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Captive, maintain; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemetry pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Transport; Ultrasound; Underwater photo/videography; Weigh	1	6/30/2015	6/30/2020	
		<b>Details:</b> Small cetacean research activities in the wild, captivity, or rehabilitation; all non-ESA listed small cetaceans; 200 takes/year total for all species; captures, sampling, and direct and incidental harassment													
3		Dolphin, unidentified	NA	All	Non-neonate	Male and Female	3	1	Unintentional mortality	Other	Unintentional mortality	N/A	6/30/2015	6/30/2020	
		<b>Details:</b> Small cetacean unintentional mortality; 3 annually (total for all species); all non-listed small cetaceans during research activities in Line 2; includes euthanasia when deemed medically necessary resulting from research activities; necropsy													
4		Dolphin, unidentified	NA	All	All	Male and Female	500	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Lavage; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Photo-id; Photogrammetry; Photograph/Video; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample,	N/A	6/30/2015	6/30/2020	

											muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Ultrasound; Underwater photo/videography; Weigh			
		<b>Details:</b> Small cet. piggy backing; sample collection during other legal takes/permitted activ. (perm. res., subs-harv, bycatch,etc)in wild, capt. or rehab; all small cet. (non-listed & ESA-listed); 500takes/yr for all spp combined; sampling & direct & incid harass												
5		Whale, unidentified baleen	NA	All	All	Male and Female	5000	5	Harass/Sampling	Survey, aerial/vessel	Acoustic, passive recording; Collect, sloughed skin; Count/survey; Incidental harassment; Observation, monitoring; Observations, behavioral; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Tracking; Underwater photo/videography	N/A	6/30/2015	6/30/2020
		<b>Details:</b> Large whale aerial and vessel surveys (manned and unmanned) and associated non-intrusive sampling in the wild; all large whales, non-listed and ESA-listed, including sperm whales; up to 5,000 takes/yr for all species combined; direct and incidental harass												
6		Whale, unidentified baleen	NA	All	Non-neonate	Male and Female	100	5	Harass/Sampling	Survey, aerial/vessel	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Collect, sloughed skin; Count/survey; Incidental harassment; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, blood ; Sample, exhaled air; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Underwater photo/videography	N/A	6/30/2015	6/30/2020
		<b>Details:</b> Large whale research activities in the wild; all non-ESA listed large whales; 100 takes/yr total for all species; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment												
											Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Measure; Measure colonic temperature;			

7		Whale, unidentified baleen	NA	All	All	Male and Female	400	5	Harass/Sampling	Other	Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Ultrasound; Underwater photo/videography	N/A	6/30/2015	6/30/2020
		<b>Details:</b> Large whale piggy backing; sample collection during other legal takes/permitted activ. (perm. res., subs-harv, bycatch,etc)in wild, capt or rehab; all small cet. (non-listed & ESA-listed); 400takes/yr for all spp combined; sampling & direct &incid harass.												
8		Pinniped, unidentified	NA	All	All	Male and Female	99999999	99999	Harass	Other	Acoustic, passive recording; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Incidental disturbance; Observation, mark resight; Observation, monitoring; Observations, behavioral; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Underwater photo/videography	N/A	6/30/2015	6/30/2020
		<b>Details:</b> Pinniped aerial, ground, and vessel surveys (manned and unmanned) in wild, captivity, or rehab; all spp of pinniped (non-listed and ESA-listed) except Hawaiian monk seals in the wild and walrus; direct & incidental harassment during any research activity												
											Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Captive, maintain temporary; Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal			



9		Pinniped, unidentified	NA	All	All	Male and Female	300	5	Capture/Handle/Release	Other	(e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Transport; Ultrasound; Underwater photo/videography; Unintentional mortality; Weigh; X-ray	1	6/30/2015	6/30/2020	
		<b>Details:</b> Pinniped research activities in the wild, captivity, or rehabilitation; all non-ESA listed species of pinniped; 300 takes/yr total for all species combined; captures, sampling, and direct and incidental harassment; no hot branding													
10		Pinniped, unidentified	NA	All	All	Male and Female	5	1	Unintentional mortality	Other	Unintentional mortality	N/A	6/30/2015	6/30/2020	
		<b>Details:</b> Pinniped unintentional mortality; 5 annually (total for all non-listed pinnipeds) during research activities in Line 9; includes euthanasia when deemed medically necessary resulting from research activities; necropsy													
											Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, molt;				

11		Pinniped, unidentified	NA	All	All	Male and Female	500	5	Harass/Sampling	Other	Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Import/export/receive, parts; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Salvage (carcass, tissue, parts); Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater photo/videography; Weigh; X-ray	N/A	6/30/2015	6/30/2020
		<b>Details:</b> Pinniped piggy backing; sample collection during other legal takes/permitted activities in wild, capt. or rehab; 500 takes/yr for all spp combined; all spp (non-listed and ESA-listed) except walrus; sampling & direct & incid. harassment; no hot branding												
12		Cetacean, unidentified	NA	All	All	Male and Female	99999999	99999	Import/export/receive only	Other	Import/export/receive, parts	N/A	6/30/2015	6/30/2020
		<b>Details:</b> Receipt, possession, transport, import, export, analysis, & curation of hard & soft parts from all cetacean species (non-listed and ESA-listed); analytical and diagnostic samples may be transported, imported, or exported to laboratories world-wide												
13		Pinniped, unidentified	NA	All	All	Male and Female	99999999	99999	Import/export/receive only	Other	Import/export/receive, parts	N/A	6/30/2015	6/30/2020

		<b>Details:</b> Receipt, possession, transport, import, export, analysis, & curation of hard & soft parts from all pinniped spp (non-listed & ESA-listed) excluding walrus; analytical & diagnostic samples may be transported, imported, or exported to labs. world-wide												
14		Whale, beluga	Range-wide	All	All	Male and Female	40	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Ultrasound; Underwater photo/videography; Weigh	N/A	6/30/2015	6/30/2020
		<b>Details:</b> Cook Inlet stock; ESA small cet. res. in wild, captivity or rehab; aerial & vessel surv. (manned & unmanned) & assoc. sampling including biopsy & tag, direct & incid. harass.; no captures in wild; no spider tag; no sedation (except in permanent captivity)												
15		Whale, false killer	Range-wide	All	All	Male and	20	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other;	N/A	6/30/2015	6/30/2020

						Female					Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Ultrasound; Underwater photo/videography; Weigh				
		<b>Details:</b> HI insular stock; ESA small cet. res. in wild, captivity or rehabil; aerial &vessel surv. (manned &unmanned) & assoc. sampling including biopsy & tag, direct &incid. harass.; no captures in wild; no spider tag; no sedation (except in permanent captivity)													
16		Whale, killer	Range-wide	All	All	Male and Female	20	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Ultrasound; Underwater photo/videography; Weigh	N/A	6/30/2015	6/30/2020	
		<b>Details:</b> Southern resident pop.; ESA small cet. res. in wild, captivity or rehabil; aerial &vessel surv. (manned &unmanned) & assoc. sampling including biopsy & tag, direct &incid. harass.; no captures in wild; no spider tag; no sedation (except in permanent capt)													

17		Whale, blue	Range-wide (NMFS Endangered)	All	All	Male and Female	40	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Ultrasound; Underwater photo/videography	N/A	6/30/2015	6/30/2020
<b>Details:</b> ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no sedation														
18		Whale, bowhead	Range-wide (NMFS Endangered)	All	All	Male and Female	40	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Ultrasound; Underwater photo/videography	N/A	6/30/2015	6/30/2020
<b>Details:</b> ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no sedation														
19		Whale, fin	Range-wide (NMFS Endangered)	All	All	Male and Female	40	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle,	N/A	6/30/2015	6/30/2020

											aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Ultrasound; Underwater photo/videography			
<b>Details:</b> ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no sedation														
20		Whale, humpback	Range-wide (NMFS Endangered/Threatened)	All	All	Male and Female	40	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Ultrasound; Underwater photo/videography	N/A	6/30/2015	6/30/2020
<b>Details:</b> ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no sedation														
21		Whale, right, North Atlantic	Range-wide (NMFS Endangered)	All	All	Male and Female	40	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Ultrasound; Underwater photo/videography	N/A	6/30/2015	6/30/2020
<b>Details:</b> ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no sedation														

22		Whale, right, North Atlantic	Range-wide (NMFS Endangered)	All	All	Male and Female	5	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Ultrasound; Underwater photo/videography	N/A	6/30/2015	6/30/2020
		<b>Details:</b> North Pacific right whale; ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no sedation												
23		Whale, sei	Range-wide (NMFS Endangered)	All	All	Male and Female	40	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Ultrasound; Underwater photo/videography	N/A	6/30/2015	6/30/2020
		<b>Details:</b> ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no sedation												
24		Whale, sperm	Range-wide (NMFS Endangered)	All	All	Male and	40	5	Harass/Sampling	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Auditory brainstem response test; Collect, sloughed skin; Imaging, thermal; Instrument, dart/barb tag; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote	N/A	6/30/2015	6/30/2020

						Female					vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, exhaled air; Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Tracking; Ultrasound; Underwater photo/videography			
<b>Details:</b> ESA-listed large whale research activities in the wild; aerial and vessel surveys (manned and unmanned) and associated sampling including biopsy and tagging, direct and incidental harassment; no sedation														
26		Seal, ringed	Okhotsk (NMFS Threatened)	All	All	Male and Female	60	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes;	N/A	6/30/2015	6/30/2020



											Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater photo/videography; Weigh; X-ray			
<b>Details:</b> Stock should be Phoca hispida hispida or Arctic stock (ESA Th. & MMPA depleted) res. activities in the wild, captivity, or rehabilitation; aerial & vessel surveys (manned & unmanned), captures, & assoc. sampling & tag., direct & incid. harass; no hot branding														
27		Seal, Guadalupe fur	Range-wide	All	All	Male and Female	60	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine	N/A	6/30/2015	6/30/2020

										catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater photo/videography; Weigh; X-ray				
		Details: ESA-listed and MMPA-depleted pinniped research activities in the wild, captivity, or rehabilitation; aerial and vessel surveys (manned and unmanned), captures, and associated sampling and tagging, direct and incidental harassment; no hot branding												
28	Sea lion, Australian	Range-wide	All	All	Male and Female	60	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample,	N/A	6/30/2015	6/30/2020	

											vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater photo/videography; Weigh; X-ray			
		<b>Details:</b> Steller sea lion, Western DPS (ESA endangered) research activities in the wild, captivity, or rehabilitation; aerial & vessel surveys (manned & unmanned), captures, & assoc. sampling & tagging, direct & incid. harass.; no hot branding												
29		Sea lion, Australian	Range-wide	All	All	Male and Female	60	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial	N/A	6/30/2015	6/30/2020

											blood samples; Ultrasound; Underwater photo/videography; Weigh; X-ray			
		Details: Steller sea lion, Eastern DPS (MMPA depleted) research activities in the wild, captivity, or rehabilitation; aerial & vessel surveys (manned & unmanned), captures, & assoc. sampling & tagging, direct & incid. harass.; no hot branding												
30		Seal, Antarctic fur	Range-wide	All	All	Male and Female	60	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Count/survey; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater	N/A	6/30/2015	6/30/2020

											photo/videography; Weigh; X-ray			
		<b>Details:</b> Northern fur seal, Pribilof Is./Eastern Pacific stock (MMPA depleted) research activities in the wild, captivity, or rehabilitation; aerial & vessel surveys (manned & unmanned), captures, & assoc. sampling & tagging, direct & incid. harass.; no hot branding												
31		Seal, Mediterranean monk	Mediterranean Sea (NMFS Endangered)	All	All	Male and Female	60	5	Capture/Handle/Release	Captive	Acoustic, active playback/broadcast; Acoustic, passive recording; Administer drug, IM ; Administer drug, intraperitoneal; Administer drug, IV; Administer drug, subcutaneous; Administer drug, topical; Anesthesia, gas w/cone or mask; Anesthesia, gas w/intubation; Anesthesia, injectable sedative; Auditory brainstem response test; Calipers (skin fold); Cognitive studies; Collect, molt; Collect, scat; Collect, spew; Collect, urine; Evan's blue dye and serial blood samples; Hormones and serial blood samples; Incidental disturbance; Instrument, external (e.g., VHF, SLTDR); Instrument, internal (e.g., PIT); Mark, bleach ; Mark, clip fur; Mark, dye or paint; Mark, flipper tag; Mark, freeze brand; Mark, other (e.g., neoprene patch); Measure (standard morphometrics); Metabolic chamber/hood; Observation, mark resight; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Remote video monitoring; Restrain, board; Restrain, cage; Restrain, hand; Restrain, net; Restrain, other; Sample, blood ; Sample, blubber biopsy; Sample, clip hair; Sample, clip nail; Sample, fecal enema; Sample, fecal loop; Sample, fecal swab; Sample, milk (lactating females); Sample, muscle biopsy; Sample, nasal swab; Sample, ocular swab; Sample, oral swab; Sample, other; Sample, skin biopsy; Sample, stomach lavage; Sample, swab all mucus membranes; Sample, tooth extraction; Sample, urine catheter; Sample, vibrissae (clip); Sample, vibrissae (pull); Stable isotopes and serial blood samples; Ultrasound; Underwater photo/videography; Weigh; X-ray	N/A	6/30/2015	6/30/2020

<b>Details:</b> Hawaiian monk seals; ESA-listed endangered Hawaiian monk seal research in captive settings (rehabilitation or permanent captivity) only; piggy backing research may occur in the wild under line 11 above; no hot branding														
32		Dolphin, bottlenose	Western North Atlantic Central Florida Coastal Stock	All	All	Male and Female	100	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Transport; Ultrasound; Underwater photo/videography; Weigh	1	6/30/2015	6/30/2020
<b>Details:</b> All Western N. Atlantic Coastal stocks; MMPA-depleted small cetacean research activities in the wild, captivity, or rehabilitation; aerial & vessel surveys (manned & unmanned), captures, & assoc. sampling including biopsy&tagging; direct&incidental harass.														
						Male					Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation,			

33		Whale, killer	Range-wide	All	All	and Female	10	3	Capture/Handle/Release	Other	monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Transport; Ultrasound; Underwater photo/videography; Weigh	1	6/30/2015	6/30/2020
<b>Details:</b> Population is AT1 Transients; MMPA-depleted small cetacean research activities in the wild, captivity, or rehabilitation; aerial & vessel surveys (manned & unmanned), captures, & associated sampling including biopsy & tagging; direct & incidental harassment														
34		Dolphin, spinner	Range-wide	All	All	Male and Female	40	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Transport; Ultrasound; Underwater photo/videography; Weigh	1	6/30/2015	6/30/2020

<b>Details:</b> Eastern Stock, East.Tropical Pac.Ocean; MMPA-depleted small cetacean research activities in the wild, captivity, or rehabilitation; aerial&vessel surveys (manned & unmanned), captures, & assoc. sampling including biopsy&tagging; direct &incidental harass.														
35		Dolphin, pantropical spotted	Northeastern Offshore Stocks	All	All	Male and Female	40	5	Capture/Handle/Release	Other	Acoustic, active playback/broadcast; Acoustic, passive recording; Acoustic, sonar for prey mapping; Auditory brainstem response test; Collect, sloughed skin; Count/survey; Imaging, thermal; Insert ingestible telemeter pill; Instrument, belt/harness tag; Instrument, dart/barb tag; Instrument, dorsal fin/ridge attachment; Instrument, implantable (e.g., satellite tag); Instrument, suction-cup (e.g., VHF, TDR); Lavage; Mark, freeze brand; Mark, roto tag; Measure; Measure colonic temperature; Metabolic chamber/hood; Observation, monitoring; Observations, behavioral; Other; Photo-id; Photogrammetry; Photograph/Video; Remote vehicle, aerial (fixed wing); Remote vehicle, aerial (VTOL); Remote vehicle, amphibious; Remote vehicle, vessel; Sample, anal swab; Sample, blood ; Sample, blowhole swab; Sample, exhaled air; Sample, fecal ; Sample, milk (lactating females); Sample, muscle biopsy; Sample, skin and blubber biopsy; Sample, skin biopsy; Sample, sperm; Sample, tooth extraction; Sample, urine ; Tracking; Transport; Ultrasound; Underwater photo/videography; Weigh	1	6/30/2015	6/30/2020
<b>Details:</b> MMPA-depleted small cetacean research activities in the wild, captivity, or rehabilitation; aerial and vessel surveys (manned and unmanned), captures, and associated sampling including biopsy and tagging; direct and incidental harassment														
36		Pinniped, unidentified	NA	All	All	Male and Female	5	1	Unintentional mortality	Other	Unintentional mortality	N/A	6/30/2015	6/30/2020
<b>Details:</b> (Unint, mort.) each spp of ESA-listed pinniped, not including Guadalupe fur seals or Hawaiian monk seals; not to exceed 5 individuals per spp over the lifetime of the permit; includes euthanasia when deemed medically necessary due to research; necropsy														
37		Seal, Guadalupe fur	Range-wide	All	All	Male and Female	1	1	Unintentional mortality	Other	Unintentional mortality	N/A	6/30/2015	6/30/2020
<b>Details:</b> (Unint. mort.) 1 total for the life of the permit (not annual); includes euthanasia when deemed medically necessary due to research; necropsy														
38		Seal, Mediterranean monk	Mediterranean Sea (NMFS Endangered)	All	All	Male and Female	1	1	Unintentional mortality	Captive	Unintentional mortality	N/A	6/30/2015	6/30/2020



	<b>Details:</b> Hawaiian monk seals; (Unint. mort.) 1 total for the life of the permit (not annual); animals sampled under line 31 above in captivity, rehab, or piggy backing only; includes euthanasia when deemed medically necessary due to research; necropsy
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Transport Information

1.	<b>Mode(s) of Transportation:</b>	As warranted to respond to the emergency or for the research project; may include boat, air, or vehicle; see permit application "Transport" section for more details.
	<b>Transportation Company:</b>	N/A
	<b>Maximum amount of time between capture and arrival:</b>	Varies depending upon emergency situation or research project
	<b>Container Description:</b>	Varies depending upon emergency situation or research project
	<b>Special Care:</b>	Transport procedures for marine mammals follow two sets of standards that have specifications for containers, food and water requirements, methods of handling, and care during transit. See the permit application for more detail.
	<b>Accompanying Personnel Qualifications:</b>	The animal(s) will be accompanied by a veterinarian or experienced biologist/animal husbandry specialist whenever possible.
	<b>Facility Title:</b>	Rehabilitation Center, various States This is an example
	<b>Facility Affiliation/Organization:</b>	
	<b>Address:</b>	Boston, MA UNITED STATES
	<b>Phone Number:</b>	
	<b>Containment Method:</b>	Animals will be held at authorized marine mammal rehabilitation facilities. These will generally be permanent members of the marine mammal stranding network, but in cases of emergency may be in temporary centers that will be inspected prior to opening.
	<b>Final Disposition:</b>	Animals will be released, placed in permanent care facilities, euthanized, or die.

NEPA Checklist

**1) If your activities will involve equipment (e.g., scientific instruments) or techniques that are new, untested,or otherwise have unknown or uncertain impacts on the biological or physical environment , please discuss the degree to which they are likely to be adopted by others for similar activities or applied more broadly.**

Several of the activities conducted by the MMHSRP and our Co-Investigator partners could be considered new and untested (or undertested), but generally such procedures represent variations or new iterations of previously and currently tested protocols with known impacts as described in Appendix H (General Descriptions of Research Methodologies under the MMPA/ESA Permit) of the Programmatic Environmental Impact Statement (PEIS) on the MMHSRP, available at: [http://www.nmfs.noaa.gov/pr/health/eis\\_appendixh.pdf](http://www.nmfs.noaa.gov/pr/health/eis_appendixh.pdf). Hot branding, vaccinations, and the use of UASs were not included in the PEIS and an environmental assessment has been prepared to analyze the effects of these activities on the human environment. Vaccinations have not been used in populations of wild marine mammals, but have been used in captive marine mammals and in wild populations of other wildlife species with known impacts. Hot branding has been used extensively in sea lions and the impacts are well documented. UASs have been used with various pinniped and cetacean species and are becoming a preferred platform for reducing impacts to wildlife to obtain monitoring and other data.

**2) If your activities involve collecting, handling, or transporting potentially infectious agents or pathogens (e.g., biological specimens such as live animals or blood), or using or transporting hazardous substances (e.g., toxic chemicals), provide a description of the protocols you will use to ensure public health and human safety are not adversely affected, such as by spread of zoonotic diseases or contamination of food or water supplies.**

Please see Section 3.5 (Human Health and Safety), Section 4.5 (Human Health and Safety), and Section 5.5 (Human Health and Safety) of the Programmatic Environmental Impact Statement on the MMHSRP, available at: <http://www.nmfs.noaa.gov/pr/health/eis.htm>. Section 3.5 defines the resource and evaluates the affected environment, including marine mammal worker safety (3.5.2.1) and public safety (3.5.2.2) Section 4.5 evaluates the potential impacts of the activities of the MMHSRP on human health and safety. Section 5.5 describes how impacts from the identified alternatives will be mitigated (avoided, minimized, or eliminated).

**3) Describe the physical characteristics of your project location, including whether you will be working in or near unique geographic areas such as state or National Marine Sanctuaries, Marine Protected Areas, Parks or Wilderness Areas, Wildlife Refuges, Wild and Scenic Rivers, designated Critical Habitat for endangered or threatened species, Essential Fish Habitat, etc. Discuss how your activities could impact the physical environment, such as by direct alteration of substrate during use of bottom trawls, setting nets, anchoring vessels or buoys, erecting blinds or other structures, or ingress and egress of researchers, and measures you will take to minimize these impacts.**

Please see Section 3.2 (Biological Resources), Section 4 (Environmental Consequences), and Section 5 (Mitigation) of the Programmatic Environmental Impact Statement on the MMHSRP, available at: <http://www.nmfs.noaa.gov/pr/health/eis.htm>. Specifically, Section 3.2.1.1 defines the Protected and Sensitive Habitats (including National Marine Sanctuaries, Marine Protected Areas, Parks or Wilderness Areas, Wildlife Refuges, Wild and Scenic Rivers, designated Critical Habitat for endangered or threatened species, Essential Fish Habitat) that may be impacted by the activities conducted by the MMHSRP. Section 4 discusses what the impacts of the MMHSRP's activities may be. Section 5 describes how those impacts will be mitigated (avoided, minimized, or eliminated) by the MMHSRP.

**4) Briefly describe important scientific, cultural, or historic resources (e.g., archeological resources, animals used for subsistence, sites listed in or eligible for listing in the National Register of Historic Places) in your project area and discuss measures you will take to ensure your work does not cause loss or destruction of such resources. If your activity will target marine mammals in Alaska or Washington, discuss measures you will take to ensure your project does not adversely affect the availability (e.g., distribution, abundance) or suitability (e.g., food safety) of these animals for subsistence uses.**

Please see Section 3.4 (Cultural Resources), Section 4.4 (Cultural Resources), and Section 5.4 (Cultural Resources) of the Programmatic Environmental Impact Statement on the MMHSRP, available at: <http://www.nmfs.noaa.gov/pr/health/eis.htm>. Section 3.4 defines (3.4.1) and identifies (3.4.2) cultural and historic resources that may occur in the action area of the MMHRSP. Section 4.4 evaluates the potential impacts on cultural resources as a result of the proposed actions. Section 5.4 describes the mitigation measures that would be undertaken to protect cultural resources by the MMHSRP.

**5) Discuss whether your project involves activities known or suspected of introducing or spreading invasive species, intentionally or not, (e.g., transporting animals or tissues, discharging ballast water, use of equipment at multiple sites). Describe measures you would take to prevent the possible introduction or spread of non-indigenous or invasive species, including plants, animals, microbes, or other biological agents.**

Introducing or spreading invasive species is not anticipated in the work of the MMHSRP. By following the Release Criteria, all rehabilitated animals (which may have been transported) are verified to be free of novel pathogens (e.g., pathogens not present in the marine environment from which they stranded) prior to release. All tissue samples would be handled in laboratories with appropriate biosafety procedures (e.g., BSL ratings per the CDC).

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## Project Contacts

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**Responsible Party:** Teri Rowles  
**Primary Contact:** Sarah Wilkin  
**Principal Investigator:** Teri Rowles

**Other Personnel:**

Name	Role(s)
Deb Fauquier	Co-Investigator
Teri Rowles	Principal Investigator
Trevor Spradlin	Co-Investigator
Jaclyn Taylor	Co-Investigator
Sarah Wilkin	Primary Contact

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**Attachments**

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- APHIS License** - P18786T8CaptiveD-Final.docx (Added Apr 16, 2015)
- Application Archive** - P18786T14Issued.pdf (Added Sep 9, 2015)
- Certification of Care** - P18786T10CaptiveF-Final.docx (Added Apr 16, 2015)
- Contact** - Deb Fauquier C14611T5CV\_Fauquier\_April2016Short.doc (Added Apr 13, 2016)
- Contact** - Deb Fauquier C14611T5Fauquier\_CV.pdf (Added Oct 7, 2010)
- Contact** - Deb Fauquier C14611T5Fauquier\_CV\_May 2014.doc (Added Jun 27, 2014)
- Contact** - Jaclyn Taylor C17879T5JTaylor CV 10-2012.docx (Added Jun 30, 2014)
- Contact** - Sarah Wilkin C9613T5SarahWilkinResume2014.doc (Added Jun 25, 2014)
- Contact** - Teri Rowles C6576T5Rowles CV July 2011.docx (Added Jun 30, 2014)
- Contact** - Trevor Spradlin C9616T5TRSpradlin-CV-2014.pdf (Added Jun 30, 2014)
- IACUC Proposal** - P18786T9CaptiveE-Final.docx (Added Apr 16, 2015)
- Project Description** - P18786T118786\_ProjectDescriptionActivities-MMHSRP.docx (Added Sep 9, 2015)
- Project Description** - P18786T1Figure 1-ESAStrandings.pdf (Added Jun 27, 2014)
- Project Description** - P18786T1MMHSRP-AppendixA-D.pdf (Added Apr 16, 2015)
- Project Description** - P18786T1MMHSRP-AppendixE-1-E-6.pdf (Added Apr 16, 2015)
- Project Description** - P18786T1MMHSRP-AppendixE-7-E-11.pdf (Added Apr 16, 2015)
- Project Description** - P18786T1MMHSRP-AppendixF-H.pdf (Added Apr 16, 2015)
- Project Description** - P18786T1MMHSRP-ESARecoveryPlans.docx (Added Apr 14, 2015)

**Project Description** - P18786T1MMHSRP-Lethal take.docx (Added Apr 14, 2015)

**Project Description** - P18786T1StatusofAffectedSpeciesTable-SupplementalInfo.docx (Added Apr 16, 2015)

**Project Description** - P18786T1Table1-MMHSRP Permit Application.docx (Added Apr 14, 2015)

**References** - P18786T12MMHSRP Permit Application Lit Cited-Uploaded-FINAL.docx (Added Apr 16, 2015)

Status

**Application Status:** Application Complete

**Date Submitted:** July 2, 2014

**Date Completed:** April 16, 2015

**FR Notice of Receipt Published:** May 1, 2015    **Number:** 2015-10186

**Comment Period Closed:** June 1, 2015    **Comments Received:** No    **Comments Addressed:** No

**Last Date Archived:** June 15, 2017

- **MMPA/ESA Research/Enhancement permit**
  - Current Status:** Issued    **Status Date:** June 30, 2015
  - Section 7 Consultation:** Formal Consultation
  - NEPA Analysis:** Environmental Assessment
  - Date Cleared by General Counsel:** June 29, 2015
  - FR Notice of Issuance/Denial Published:** July 28, 2015    **Notice Number:** 2015-18452
  - Expire Date:** June 30, 2020

**Analyst Information:**

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Modification Requests

Modifications Requested						
Number	Title	Description	Status	Date Submitted	Date Issued	Issued Version
1	BBC Film Authorization	Request for BBC film crew to accompany and film Marine mammal health and stranding response program (MMHSRP) permitted personnel responding to entangled whales in the Monterrey Bar area under Permit No. 18786. The purpose of filming is for BBC television documentary titled Big Blue Live.	Issued	07/30/2015	08/12/2015	P18786_Mod1_i5410T14Issued.pdf

2	BCII Film Request	Film authorization request for Brentwood Communications International Inc (BCII) to accompany and film MMHSRP permitted personnel responding to entangled whales in California under Permit No. 18786. Footage would be used for a television series titled Ocean Rescue Team, which features first responders who conduct search and rescue operations for animals.	Issued	07/30/2015	08/12/2015	P18786_Mod2_i5411T14Issued.pdf
3	Film Authorization for US Coast Guard 090315	Film authorization request for the US Coast Guard videographer to accompany permitted personnel and film/photograph the transport of two rehabilitated Hawaiian monk seals from Kona to Honolulu in September 2015 under the authority of Permit No. 18786. Photos may be published on the Coast Guard Compass, the service's flagship blog and the video may be used in conjunction with a press release to describe the Coast Guard's support of NOAA and Hawaiian monk seal conservation and recovery.	Issued	09/03/2015	09/03/2015	P18786_Mod3_i5413T14Issued.pdf
4	Film Authorization for US Coast Guard 041116	Film authorization to allow members of the media and Coast Guard to photograph and film the transport of rehabilitated Hawaiian monk seals aboard a Coast Guard flight from Kona to Honolulu, Hawaii, under the authority of Permit No. 18786. Footage/images will be used to educate the public on Hawaiian monk seal recovery efforts. Supplementary footage will be collected by National Marine Fisheries Service and The Marine Mammal Center permitted personnel, and shared with the media and Coast Guard.	Issued	04/04/2016	04/11/2016	P18786_Mod4_i5414T14Issued.pdf
5	Screenscope, Inc to film dolphin captures in Barataria Bay, LA	<p>Screenscope, Inc., a film production company based in Washington, DC would like to request permission to film the collaborative efforts of dolphin capture-releases in and around Barataria Bay, LA in July 2016.</p> <p>In order to acquire video documentation of the procedures, Screenscope proposes to embed two staff members on research vessels with the health assessment team. These two individuals, William (Bill) Mills, the cinematographer, and John (Jack) Neu, the sound recordist, are free-lance or contract workers for this specific shoot. The cinematographer would be filming with a SONY video camera and a small GoPRO camera in the case that there is opportunity to acquire underwater footage. With the assistance of the National Marine Mammal Foundation (NMMF), an additional boat would be rented and driven by an NMMF captain to ensure that the boat remains at an appropriate distance from the work sites as designated by the permit holder, Dr. Teri Rowles. Marilyn Weiner, the producer, and Harold Weiner, the writer/director, who are also the founders of Screenscope, Inc., would work from this additional vessel.</p> <p>The products of filming will comprise a documentary that is a follow-up to Dispatches from the Gulf, and will be an episode of the Journey to Planet Earth television series. Through this documentary, Screenscope aims to educate the public about the post Deepwater Horizon oil spill investigations and to share with viewers one piece of the puzzle in understanding how the ocean environment is responding to this cumulatively impactful event.</p>	Issued	05/31/2016	07/06/2016	P18786_Mod5_i5434T14Issued.pdf
6	Isabelle Groc Film Request for MMHSRP Entanglement responses	<p>The reporting project focuses on documenting the entanglement of whales in fishing gear in the United States and the solutions. This is a new project that builds on an ongoing reporting project on North Atlantic Right whales that was initiated in 2013. The expected outcomes of the reporting project are a photo essay, a long-form feature story, and a photo exhibition. As part of the project, I am aiming to visually show the various dimensions of the entanglement issue and explore the interconnections between science, conservation, and fishing communities. I am looking to take photographs of entanglement responses on the ground with various whale species (humpbacks, gray whales, right whales, etc.), fishing gear, fishing practices, and entanglement response training.</p> <p>Production team: Isabelle Groc (writing and photography)</p>	Issued	06/10/2016	06/22/2016	P18786_Mod6_i5439T14Issued.pdf

7	Request for Re-initiation of formal consultation under the ESA for incidental take of non-target sp.	<p>The Permits and Conservation Division and the Marine Mammal Health and Stranding Response Program (MMHSRP) request re-initiation of consultation and conference on Permit No. 18786 and the MMHSRP's Final Programmatic Environmental Impact Statement (PEIS) and supplemental Environmental Assessment (EA) to evaluate impacts on the following species during enhancement activities and baseline health research of marine mammals carried out pursuant to Permit No. 18786 and response of non-listed marine mammals carried out pursuant to section 109(h) of the Marine Mammal Protection Act (MMPA):</p> <p>Green sea turtle, <i>Chelonia mydas</i>  Hawksbill sea turtle, <i>Eretmochelys imbricate</i>  Kemp's ridley sea turtle, <i>Lepidochelys kempii</i>  Leatherback sea turtle, <i>Dermochelys coriacea</i>  Loggerhead sea turtle, <i>Caretta caretta</i>  Olive ridley sea turtle, <i>Lepidochelys olivacea</i>  Smalltooth sawfish, <i>Pristis pectinate</i>  Atlantic Sturgeon, <i>Acipenser oxyrinchus oxyrinchus</i>  Gulf Sturgeon, <i>Acipenser oxyrinchus desotoi</i>  Shortnose Sturgeon, <i>Acipenser brevirostrum</i>  Johnson's Seagrass, <i>Halophila johnsonii</i></p> <p>This re-initiation request is to add incidental take of non-target animals to the Biological Opinion issued in June 2015, for the issuance of Permit 18786 for the following ESA-listed species: five annual takes of unidentified hardshell turtles, one annual take of leatherback sea turtles, two annual takes of smalltooth sawfish, one annual take of Atlantic sturgeon, one annual take of shortnose sturgeon, and one annual take of Gulf sturgeon. The nature of the work (emergency response and response-related research) makes it difficult to determine the exact locations net capture activities will occur; therefore, takes of unidentified hardshell turtles are requested instead of individual takes for each hardshell sea turtle species. In addition, we request consultation on the actions' effects on Johnson's seagrass and Johnson's seagrass critical habitat.</p> <hr/> <p>Note: during the ESA section 7 consultation, take numbers were increased and Green sturgeon were added (see Incidental take table and issued Biological Opinion Incidental Take Statement).</p>	Issued	03/21/2016	07/13/2016	P18786_Mod7_i5499T14Issued.pdf
8	Ocean mind film authorization	<p>PROJECT SUMMARY:  To perform in-water focal-animal follows on humpback whales in Maui Nui waters over 12 days of effort between February 13 – April 30, 2017 (or as soon as activities have been approved). Effort will be based from the Hawaiian Islands Humpback Whale National Marine Sanctuary's research vessel, Kohol?, and under oversight of Edward Lyman, the Sanctuary's Resource Protection Specialist. In-water work represents qualified personnel using closed-circuit rebreathers as to minimize any low-level harassment, at depths to NOT exceed no-decompression limits. Review of in-water operations has been performed by Hans Van-Tilburg, the Office of National Marine Sanctuaries' Unit Diving Supervisor and the National Dive Board (NDB).</p> <p>Geographic location: Waters off leeward Maui, also referred to as Maui Nui, and that represent Sanctuary waters between the islands of Maui, Kaho'olawe, Lanai, and Molokai.</p> <p>Project time frame: February 13, 2017 (or as activities are approved) to April 30, 2017.</p> <p>Project goals: To perform in-water focal-animal follows on humpback whales by qualified personnel using closed-circuit rebreathers as to minimize any low-level harassment for the purpose of gaining valuable information for research, as well as,</p>	Issued	01/17/2017	01/23/2017	P18786_Mod8_i5664T14Issued.pdf

		<p>education and outreach.</p> <p>OUTREACH</p> <p>An outcome of this ambitious project will be a 13-minute 3D-fulldome experience developed and produced by Ocean Mind, and commissioned by Coral World International and the Maui Ocean Center for the future "Maui Ocean Dome" (working title) located at the Maui Ocean Center in Ma'alaea, Maui, HI, scheduled to be opened in fall 2017. Since opening its doors in 1998, the Maui Ocean Center has drawn millions of visitors of all ages from around the globe to discover Hawaii's undersea world in a captivating and educational setting. Aptly termed "The Hawaiian Aquarium", this quaint attraction faithfully replicates the natural ocean ecosystem, where visitors encounter only animals that occur in Hawaii and highlights the close relationship that exists between Hawaiians and the Sea.</p> <p>The outcome also includes an experimental 360°-VR logbook (the making of) featuring the people, the partnering organizations and the mission, to contribute to the humpback whales' well-being, and at the same time increasing the public's understanding and stewardship by providing an immersive experience, yet well messaged experience. The 13-minute 3D-fulldome video will be available for VR-headsets and the design can lead to additional future immersive and interactive installations for exhibits and educational outreach programs (Maui Ocean Center, Sanctuary Visitors Center, Sanctuary education and outreach programs, Whalers Village, etc.).</p> <p>The R/V Kohol? is the primary research and diving vessel used by the Hawaiian Islands Humpback National Marine Sanctuary staff, and was specifically built and customized for large whale response, disentanglement and research (a one-pager will be included).</p> <p>The stereoscopic underwater camera system that will be used during the operation will capture ultra-high resolution, ultra-wide angle and three-dimensional images made with two separate cameras mounted side-by-side. The benefits of stereoscopic video are quite wide ranging – the most obvious being the increase in depth perception and total immersion. The underwater unit also includes a 42 Megapixel still camera that will greatly aide full-body health and risk assessment analysis. Cameras are approximately 18" x 24" x 12" and are quite manageable. Additional 360° video cameras mounted on the main camera unit and above water will be used to create content for 360° behind the scenes documentation.</p> <p>All video-units will be operated by a highly experienced team of divers. Diver #1 will serve as primary camera. Diver #2 will be second camera. Diver #3 will provide dedicated safety, underwater navigation and communication with topside. Diver #4 will remain on deck except in emergencies and provide surface support while staying in contact with the submerged dive team. All dives will be non-decompression dives.</p> <p>All divers will be equipped with closed-circuit mix gas rebreather systems which will permit them to execute "low-impact" longer term follows with no bubbles or sounds in depths from 10 to 120 feet, and allow for dive durations of up to several hours. This will enable never before observed and "new" insights into whale behavior, with minimal or no disturbance to the animals. To ensure maximum safety, mobility and constant communication with the surface unit, modern communication systems, floatation devices and personal propulsion systems will be used where appropriate.</p>				
9	HBO VICE News Tonight	<p>Film authorization request from Kathy Burek, DVM, to allow film crew from HBO's Vice News Tonight to accompany her and film necropsies of marine mammals in Alaska.</p> <p>1. Species. What is being filmed? We won't know this until the last minute.</p> <p>2. Location: Alaska (We won't know this until the last minute)</p>	Issued	06/15/2017	06/15/2017	

		<p>3. Duration: This will depend on the location and on the species. Can we assume 1 to 3 days? We hope this will happen in the next few months between June 16th and September 15th.</p> <p>4. Platforms: The filming will be done with 1 to 2 cameras (Sony FS7), tripod, and microphones. (Please let me know if you need more specifics. We will try to keep the equipment as minimal as possible to avoid interference.)</p> <p>5. Number of film crew and roles. This will be 1 to 2 people at most. The Videographer will be Steven L. Rychetnik, and he will possibly require a Production Assistant depending on location of shoot. You can also add my name (Jeanny Gonzalez) in case I happen to be there when the opportunity arises.</p> <p>6. Purpose: The purpose is to show the importance of Kathy's work, to show what a certified veterinary pathologist does in the field and to see if the work has changed at all as Arctic temperatures have been rising.</p> <p>7. What is the end product? How is it being broadcast to the public? The end product will be a segment 5 to 10 minutes on VICE News Tonight, a nightly news show airing on HBO.</p>				
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Reports

Reports Required						
Nbr	Report Type	Report Period		Date Due	Status	Date Received
		Start Date	End Date			
1	Annual	07/01/2015	06/30/2016	01/31/2017	Submitted	01/31/2017
2	Annual	07/01/2016	06/30/2017	09/30/2017	N/A	
3	Annual	07/01/2017	06/30/2018	09/30/2018	N/A	
4	Annual	07/01/2018	06/30/2019	09/30/2019	N/A	
5	Annual	07/01/2019	06/30/2020	09/30/2020	N/A	
6	Final	07/01/2015	06/30/2020	12/30/2020	N/A	